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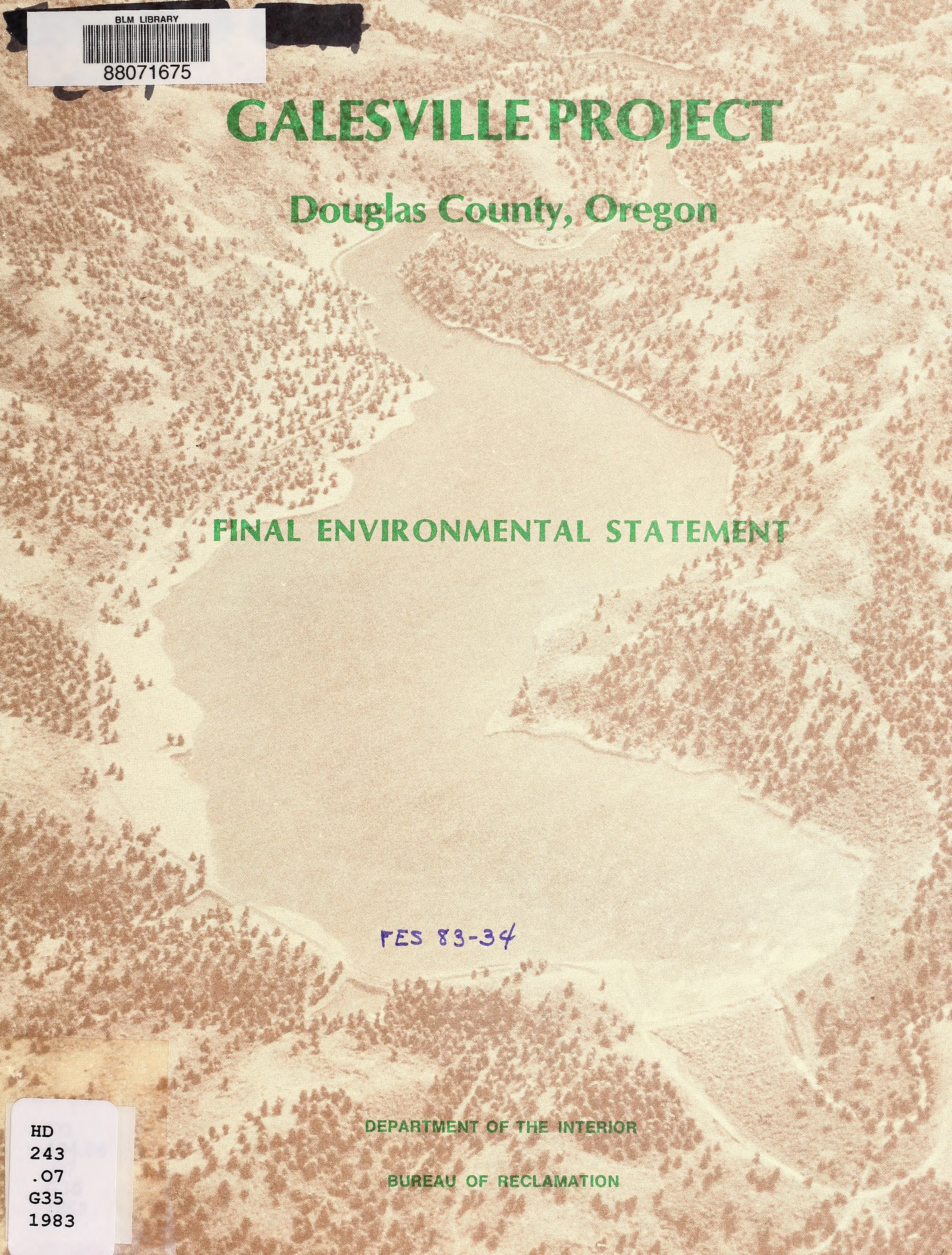

GALESVILLE PROJECT

Douglas County, Oregon

FINAL ENVIRONMENTAL STATEMENT

FES 83-34

DEPARTMENT OF THE INTERIOR

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FEDERAL BUILDING & U.S. COURTHOUSE
BOX 043 - 550 WEST FORT STREET
BOISE, IDAHO 83724 - 0430

IN REPLY
REFER TO:

Dear Reader:

This Final Environmental Statement (FES) is furnished for your information and use. It has been prepared as a result of comments received by the Bureau of Reclamation during the public review of the Draft Environmental Statement (DES).

The Final Environmental Statement is in a condensed format consistent with the intent of the Council on Environmental Quality Regulations in that certain portions of the DES has not been reproduced. For complete coverage, a copy of the draft and final environmental statements must be used together. If you received an Executive Summary of the DES, it and the FES Summary are comparable.

A copy of the DES may be obtained upon request to:

Director, Douglas County Water
 Resources Survey
Room 104, Justice Building
Roseburg, Oregon 97470

or

Regional Director (Attention: PN 150)
Pacific Northwest Region
Bureau of Reclamation
Box 043, 550 West Fort Street
Boise, Idaho 83724

Should you desire to offer written comments on the content of this Final Environmental Statement, they will be considered as part of the Federal decision process if received by the Bureau of Reclamation within 30 days of the filing date indicated at the bottom of the cover sheet in the FES.

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FINAL
ENVIRONMENTAL STATEMENT

GALESVILLE PROJECT
DOUGLAS COUNTY, OREGON

Prepared by:
Pacific Northwest Region
Bureau of Reclamation
Department of the Interior

In cooperation with:
U.S. Army Corps of Engineers
Bureau of Land Management
National Marine Fisheries Service
U.S. Fish and Wildlife Service
Forest Service
Federal Energy Regulatory Commission

Under provisions of the Small Reclamation Projects Act (Public Law 84-984, as amended), Douglas County has applied to the Bureau of Reclamation for a Federal loan to develop a dam, reservoir, powerhouse, and related facilities at the Galesville site on Cow Creek.

This statement analyzes the environmental consequences of a proposal to store surface water to meet municipal, industrial, irrigation, and fisheries needs in southern Douglas County, Oregon. Other water-related project functions evaluated and included in the proposed plans are flood control, recreation, and hydroelectric energy generation.

Four alternative sites, in addition to no action, have been evaluated. One of these, the Galesville site, has been identified as the proposed plan. The key features of the proposed project include a dam, a 42,225-acre-foot reservoir covering 640 acres, and a 1.8-megawatt electrical generating facility. The proposal includes features and measures to (1) enhance the fishery potential of Cow Creek below the dam, (2) improve water recreation in the Galesville area, (3) improve agricultural production in the project service area, (4) provide flood control protection for areas downstream of the dam, and (5) overcome current municipal and industrial water supply deficits and meet future needs in the service area.

The draft environmental statement was filed with the Environmental Protection Agency and made available to the public on March 8, 1983 (DES 83-13). That environmental statement was also used to obtain public review and comment on wetlands protection (Executive Order 11990) and flood plain management (Executive Order 11988) in accordance with Bureau of Reclamation procedures.

This final environmental statement presents the results of agency and public review of the draft environmental statement. Based on that review, it has been concluded that (1) no changes are required in the proposed plan and (2) the analyses presented in the draft environmental statement remain valid. In the draft statement an earthfill dam was proposed. However, based on additional data collected since the draft statement was prepared, a roller-compacted concrete design has been tentatively selected in lieu of the earthfill alternative. Thus, this document also describes the changes in environmental effect expected due to providing a roller-compacted concrete structure at the Galesville site. This design change would result in minor changes in environmental impact, but the net environmental effect should be positive. It should be noted that this final statement is meant to be used in conjunction with the draft environmental statement

Federal decision on the proposed program will not be made until at least 30 days after the Environmental Protection Agency Final Environmental Impact Statement "Notice of Availability" has appeared in the Federal Register. During that 30-day period, written comments on the content of the final environmental statement will be accepted at the address noted below. These comments will be considered in the Federal decision process.

For further information on the processing or content of this document, please contact Gaye W. Lee, Office of Environment (PN 150), Bureau of Reclamation, Box 043, 550 West Fort Street, Boise, Idaho 83724, or call (208) 334-1207.

Statement Number: FES 83-34

Filing Date: July 11, 1983

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SUMMARY OF ENVIRONMENTAL STATEMENT

SUMMARY

This statement analyzes the environmental consequences of developing water storage to meet existing and future water resource needs in southern Douglas County, Oregon (see figure 1). Project functions included in the plans include water supply (irrigation, municipal, and industrial); fish enhancement; flood control; hydropower generation; and outdoor recreation. Four alternative sites for development were evaluated. One of these, the Galesville site, has been adopted as the proposed plan. The area covered by this statement includes Cow Creek and the South Umpqua River downstream from the mouth of Cow Creek to its confluence with the North Umpqua River.

Under provisions of the Small Reclamation Projects Act (Public Law 84-984, as amended), Douglas County has applied to the Bureau of Reclamation for a Federal loan and grants to develop a dam, reservoir, powerhouse, and related facilities at the Galesville site on Cow Creek.

PURPOSE OF AND NEED FOR ACTION

Demands for consumptive water use frequently exceed available streamflows in the South Umpqua River basin (of which Cow Creek is a part) during July through October. Not only are irrigation supplies inadequate, but a number of municipalities, group domestic water systems, and industrial water users have unreliable supplies. Due to low streamflows in most years, diversions are severely restricted or not allowed during some periods of the low flow season.

The area contains dry irrigable acres which need water for commercial irrigation and irrigated lands which need supplemental water to meet their full production potential. In addition, a significant amount of land designated in the Douglas County Comprehensive Plan as rural residential (R-2/5) is in dry agricultural use and irrigable.

Municipal water needs are a significant portion of existing and future water needs within the South Umpqua River basin. Additional municipal water supplies are needed to satisfy existing municipal water rights where available water supplies now fall short and to meet future needs at least through the year 2027.

Future industrial water use could require substantial quantities of water. A need for 2,400 acre-feet of water has been identified to sustain and expand industrial activity in southern Douglas County. Industries included in the water demand forecast include wood products processing, pulp and paper, wood waste, energy, sand and gravel production, and food processing. A number of industrial users have also indicated a need for additional water supplies during low flow periods to maintain their current industrial operations without interruption.

Future irrigation, municipal, and industrial water use in the South Umpqua River basin can be provided only through stored water if minimum perennial streamflows, as adopted by the State Water Policy Review Board, are to be maintained. Maintaining the adopted minimum flows has necessitated curtailment of municipal and industrial water in 8 out of every 10 years.

Ground-water resources in the study area are limited. Two sources of ground water are found. These are the unconsolidated alluvial deposits and the underlying bedrock units. Well yields in the bedrock aquifer are typically low, about 5-10 gallons per minute (gpm). These wells are generally adequate to serve rural, domestic needs but could not produce sufficient quantities for municipal, industrial, and irrigation purposes.

The alluvial aquifer is present in stream valleys. In some areas, these deposits are present in great enough saturated thicknesses to provide a water source. In the Cow Creek basin near Glendale, the expected yield from the most favorable wells in the alluvium is 50-100 gpm. The average yield is about 17 gpm. Although this water source could supplement municipal water requirements, it would not be adequate as a primary source for municipal or industrial purposes and especially not for large-scale irrigation purposes.

Juvenile anadromous fish rearing habitat is severely limited in upper Cow Creek by summertime low flows and resulting high water temperatures. Monthly average flows from July through October are generally below 20 cubic feet per second (ft^3/s). The 7-day/10-year mean low flow is 6 ft^3/s on upper Cow Creek and 22 ft^3/s on lower Cow Creek. Optimum flow requirements for rearing juvenile resident and anadromous fish range from 30 ft^3/s to 175 ft^3/s. Maintaining sufficient releases to accommodate these needs would require the storage of 4,000 acre-feet in addition to releases for other downstream uses.

Flooding has been a recurring problem throughout the Cow Creek and South Umpqua River basin, and there is need for protection against flooding. Flooding usually occurs in November through March as a result of heavy winter rains and snowmelt. Streamflow records on Cow Creek indicate flooding occurred in 10 of the past 46 years. Floods that occurred in 1964 and January 1974 were the highest on record. In the Umpqua, North Umpqua, and South Umpqua basins, damages from the 1964 flood totaled nearly $26,000,000. Losses that could occur with 10-, 100-, and 500-year flood events on upper and lower Cow Creek alone are estimated at about $500,000, $5,000,000, and $13,000,000, respectively. These estimates reflect agricultural, residential, utility, highway, commercial, and industrial damages and cleanup costs in 1981 dollars.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

Four alternative reservoir sites on three streams in the Cow Creek basin were evaluated in addition to the "no action" alternative (see figure 2 for site locations).

To aid in project analysis, the area was divided into water service areas and stream reaches (see figure 3). Reach 1 (upper Cow Creek) extends from river-mile 60 to river-mile 45 (about 3 miles downstream of Glendale) on Cow Creek. Reach 2 (lower Cow Creek) extends from river-mile 10 to the mouth of Cow Creek. Reach 3 is on the South Umpqua River upstream of its confluence with Cow Creek. Reach 3 would not be served by any of the four alternatives. Reach 4 extends downstream along the South Umpqua River from

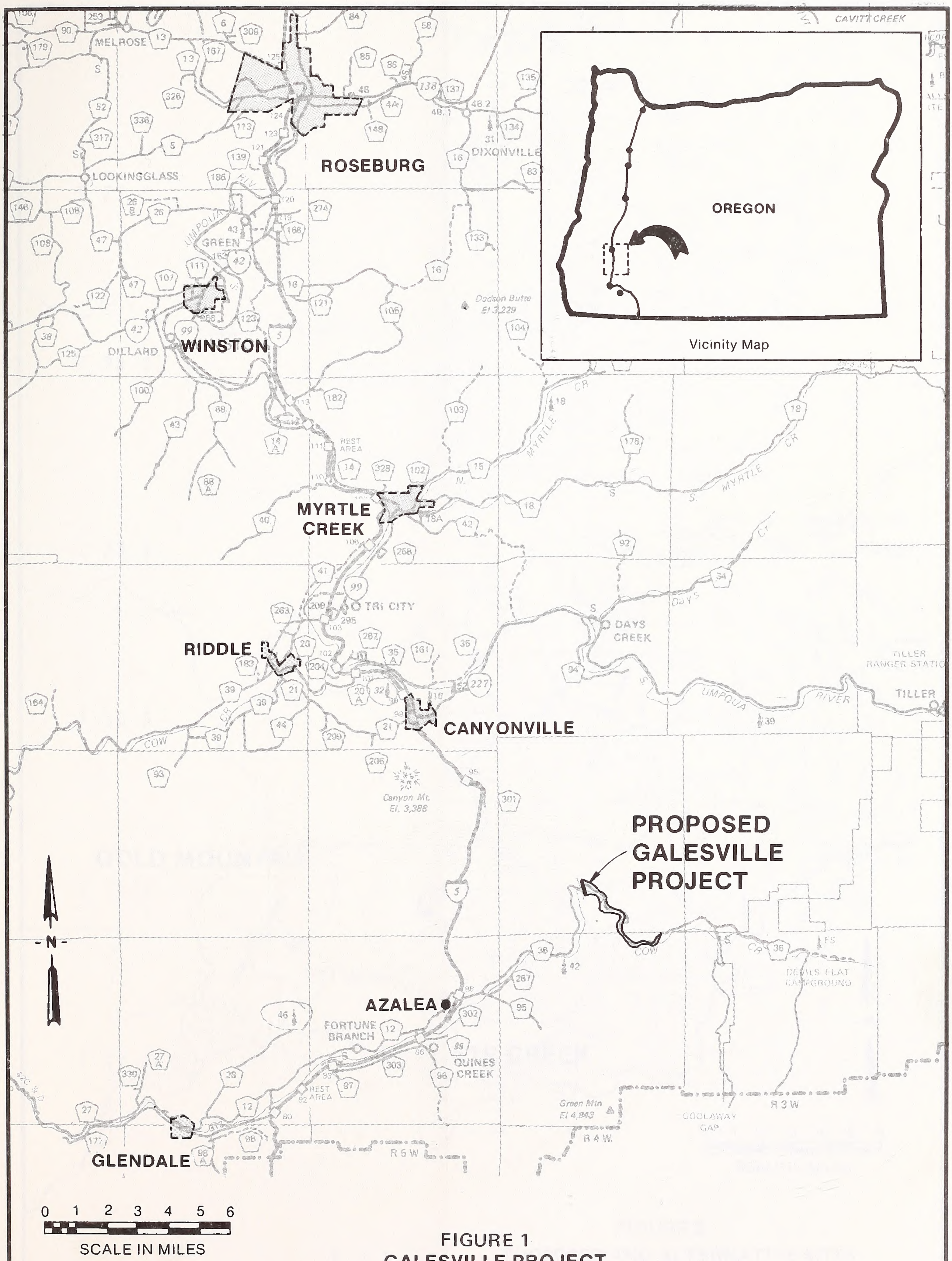


FIGURE 1
GALESVILLE PROJECT
LOCATION MAP
DOUGLAS COUNTY, OREGON

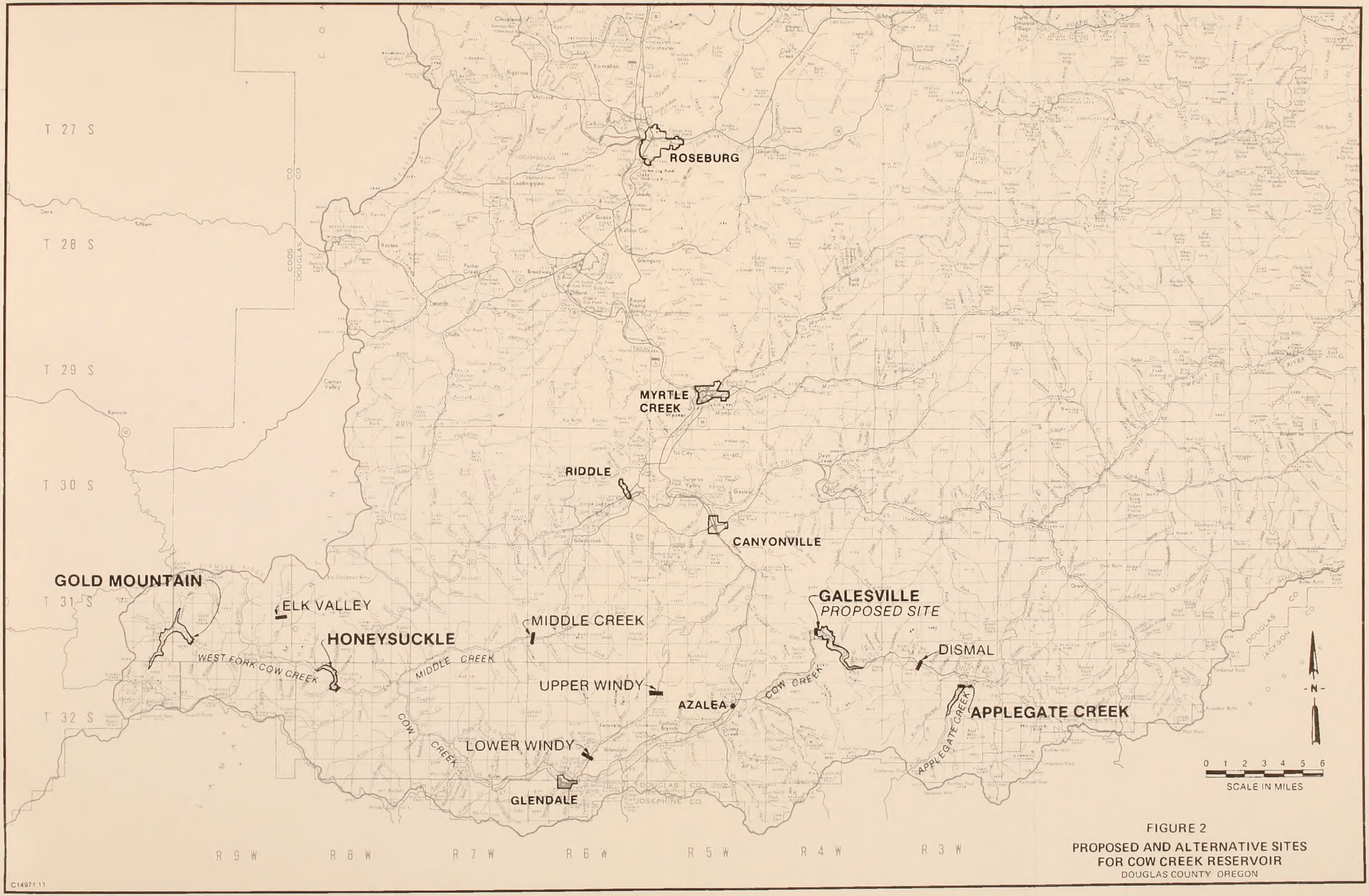
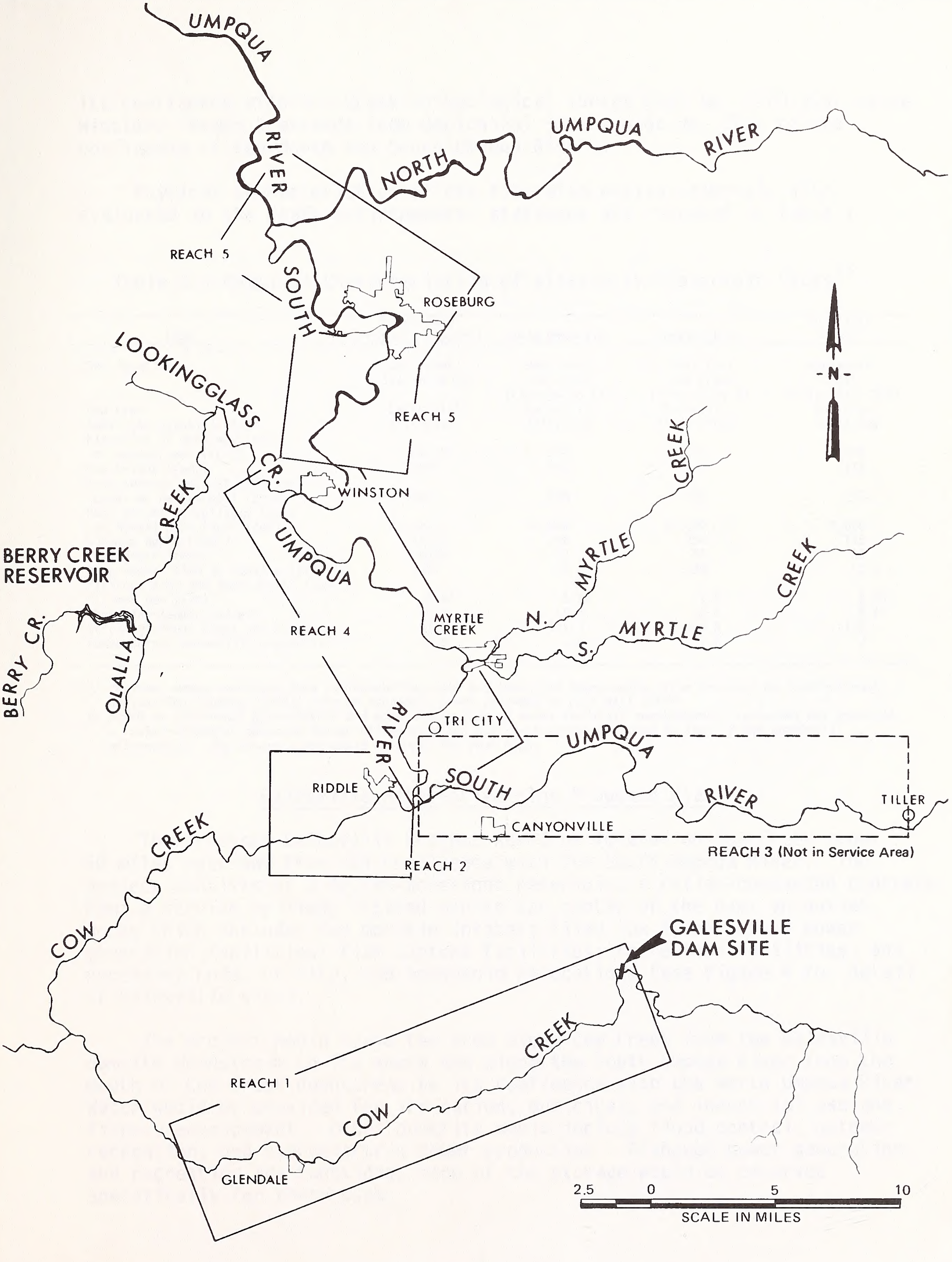


FIGURE 2
PROPOSED AND ALTERNATIVE SITES
FOR COW CREEK RESERVOIR
DOUGLAS COUNTY OREGON



(SOURCE: MYERS, 1982)

FIGURE 3

WATER SERVICE AREAS
DOUGLAS COUNTY, OREGON

C14971.C0

its confluence with Cow Creek to Geological Survey gage No. 3120 just below Winston. Reach 5 extends from Geological Survey gage No. 3120 to the confluence of the North and South Umpqua Rivers.

Physical characteristics of the four alternative reservoir sites evaluated in the draft environmental statement are compared in table 1.

Table 1.--Physical Characteristics of Alternative Reservoir Sites[1]

Item	Galesville (Proposed Project)	Gold Mountain	Honeysuckle	Applegate Creek
Dam location	Cow Creek (river-mile 60)	West Fork Cow Creek (river-mile 14)	West Fork Cow Creek (river-mile 3)	Applegate Creek (river-mile 0.5)
Dam type	Earthfill[2]	Earthfill	Rockfill	Earthfill
Substrate classification	Silt/clay	Silt/clay	Silt/bedrock	Silt/clay
Elevation of spillway crest or normal pool (feet)	1,881.5	1,944	1,350	2,258
Dam height (feet)	158	225	277	125
Pool surface area at spillway crest or normal pool (acres)	640	530	400	170
Pool volume at spillway crest or normal pool (acre-feet)	42,225	38,000	38,000	9,000
Maximum depth (feet)	131.5	204	250	115
Mean depth (feet)	65.9	72	95	53
Mean annual flow at damsite (ft^3/s)	209	65	230	15.2
Flushing rate and mean annual flow (times per year)	1.87	1.24	4.4	1.23
Shoreline length (miles)	8.7	15.3	12.5	4.1
Stream gradient (feet per mile)	97.5	171.3	100.5	106
Power output potential (megawatts)	1.8	1.8	7.5	0

[1] *Physical characteristics data on Galesville, Gold Mountain, and Honeysuckle sites provided by International Engineering Company (1982); data on Applegate Creek provided by CH_2M Hill (1976)*

[2] *Based on additional geotechnical and cost data collected since the draft environmental statement was prepared, a roller-compacted concrete design alternative has been tentatively selected in lieu of the earthfill alternative. The concrete dam would be about 150 feet high.*

Galesville Alternative--The Proposed Plan

The proposed Galesville Project would be located on Cow Creek about 60 miles upstream from its confluence with the South Umpqua River. The project consists of a 42,225-acre-foot reservoir; a roller-compacted concrete dam; a service spillway located across the center of the dam; an outlet works which includes two movable intakes; fixed low level intake power generation facilities; fish capture facilities; recreation facilities; and necessary road, utility, and household relocations (see figure 4 for detail of Galesville site).

The project would serve the area along Cow Creek from the Galesville damsite downstream to its mouth and along the South Umpqua River from the mouth of Cow Creek downstream to its confluence with the North Umpqua River. Water would be provided for irrigation, municipal, and industrial use and fishery enhancement. Other benefits would include flood control, outdoor recreation, and hydroelectric power production. Although power generation and recreation are functions, none of the storage would be reserved specifically for these uses.

The project would assure an adequate municipal and industrial water supply for Glendale, Riddle, and group domestic systems on Cow Creek and for municipal and industrial organizations located along the South Umpqua River from the mouth of Cow Creek downstream to its confluence with the North Umpqua River. Overall, most existing and future municipal and industrial water supply needs in the study area would be satisfied.

Irrigation water would be provided to 5,084 acres that are presently dry, 1,183 acres that require supplemental irrigation, and 955 acres zoned for rural residential use (R-2/5) that are presently dry.

Water for municipal, industrial, and irrigation use would be released directly into Cow Creek. Releases would be pumped from Cow Creek and the South Umpqua River by individually owned facilities. Diversions would be monitored and regulated by the district watermaster.

The powerhouse would contain two 900-kilowatt (kW) units. Power production would average 6,045,700 kilowatt-hours (kWh) annually and would be marketed by the Pacific Power and Light Company (PP&L). A switchyard would be provided. Existing PP&L transmission lines along Cow Creek Road would be replaced with larger capacity conductors for a distance of about 18 miles to increase line capacity to 34.5 kilovolts (kV). Power production would be incidental to the release of water for other project purposes, and water would be routed through the powerplant according to the schedule necessary to meet irrigation, municipal, industrial, fishery, and flood control needs.

A recreation area would be developed about 1/2 mile above the dam along the north side of the reservoir. Facilities would include picnic sites, a picnic shelter, restrooms, a boat ramp, access roads, parking areas, and foot trails. The recreation area would be maintained by the Douglas County Parks Department. The recreation plan would accommodate an average of 45,000 recreation-days of additional use annually.

Project construction would result in an annual flood control benefit of $909,800.

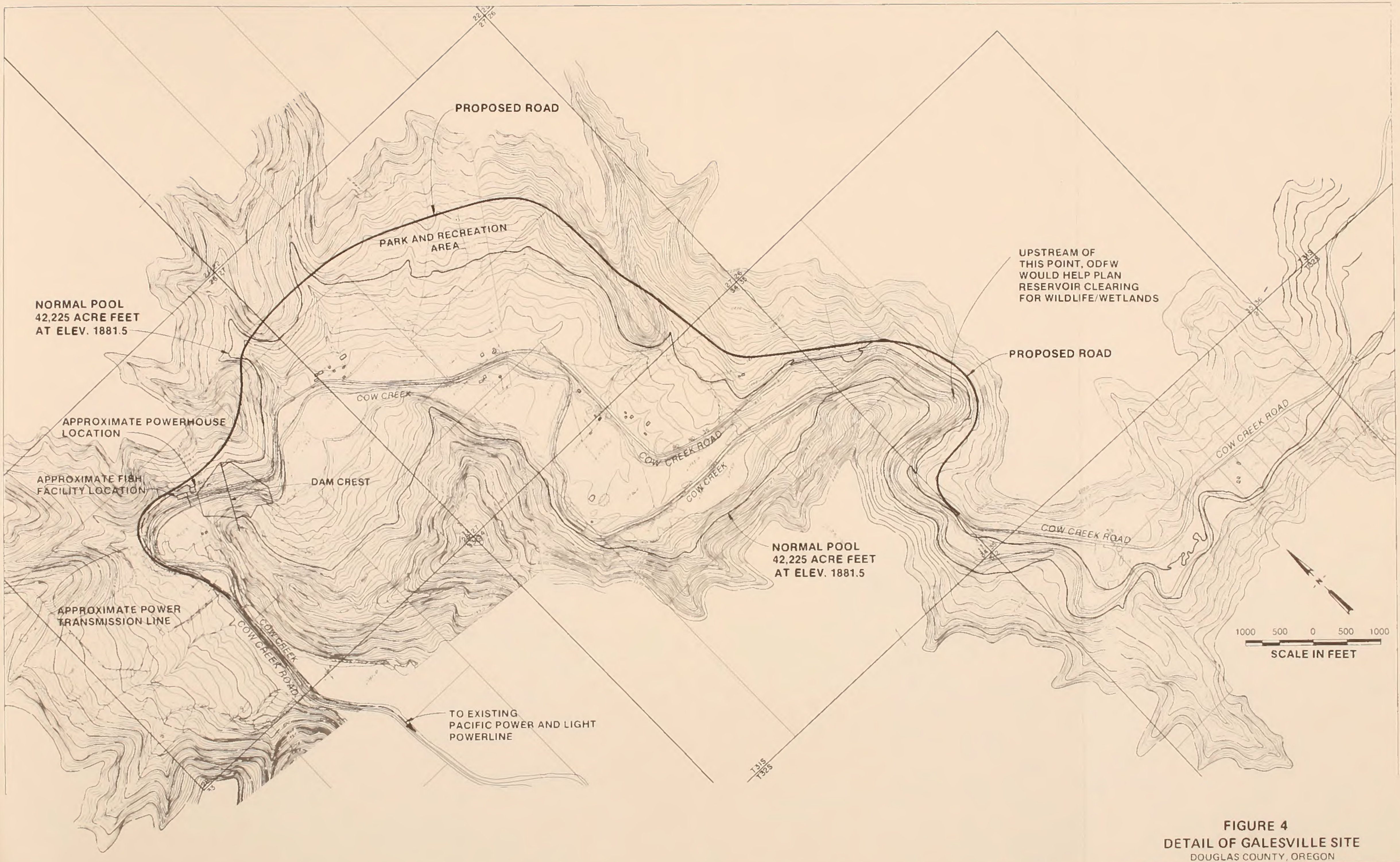

PROPOSED ROAD
PARK AND RECREATION AREA
UPSTREAM OF THIS POINT, ODFW WOULD HELP PLAN RESERVOIR CLEARING FOR WILDLIFE/WETLANDS
NORMAL POOL 42,225 ACRE FEET AT ELEV. 1881.5
PROPOSED ROAD
COW CREEK
APPROXIMATE POWERHOUSE LOCATION
APPROXIMATE FISH FACILITY LOCATION
DAM CREST
COW CREEK ROAD
COW CREEK
COW CREEK ROAD
COW CREEK ROAD
NORMAL POOL 42,225 ACRE FEET AT ELEV. 1881.5
APPROXIMATE POWER TRANSMISSION LINE
COW CREEK
COW CREEK ROAD
TO EXISTING PACIFIC POWER AND LIGHT POWERLINE
T31S
T32S
N
1000 500 0 500 1000
SCALE IN FEET

FIGURE 4
DETAIL OF GALESVILLE SITE
DOUGLAS COUNTY, OREGON

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The acquisition of about 139 acres of public land and 870 acres of private land would be required to construct the dam and reservoir. An estimated 295 acres of this land is in agricultural use. Eight families residing within the proposed acquisition line would require relocation. The reservoir would inundate a portion of the Cow Creek Road and the telephone and electric lines that parallel it. The road would be relocated to the north side of the lake for a distance of about 4.5 miles. Existing utility lines would be relocated within the new right-of-way.

Galesville dam would block access to 28.7 miles of anadromous fish spawning and rearing habitat in upper Cow Creek. This habitat loss would be more than offset by fishery enhancement through improved streamflows and the release of hatchery coho juveniles throughout the Cow Creek subbasin.

Four thousand acre-feet of storage capacity in the reservoir would be allocated for streamflow enhancement. As directed by the Oregon Department of Fish and Wildlife, this water would be released during low flow, high temperature periods to enhance resident and anadromous fish habitat in Cow Creek. Two movable intakes for the dam's outlet works would permit selection of discharge water from various reservoir strata primarily to minimize turbidity and to optimize downstream water temperatures for fish. The outlet works would also aid in the control of other downstream water quality parameters. Minimum flows adopted by the State Water Policy Review Board would be maintained in accordance with the Oregon Revised Statutes. Fish releases would be monitored to insure that they remain instream.

Anadromous fish capture facilities would be constructed below the powerhouse to trap adult coho salmon. The trapped coho would be transported to the Rock Creek Fish Hatchery for spawning. A rearing pond for the coho would be constructed at the hatchery. Coho juveniles raised at the hatchery would be transported and released throughout the Cow Creek subbasin in tributary streams located below the Galesville site. Final fish facility layout and design will be more completely defined during the dam's final design stage in cooperation with the Oregon Department of Fish and Wildlife and the National Marine Fisheries Service.

Overall, the proposed flow and water temperature improvements would result in significant fish habitat improvement between the dam and the mouth of Cow Creek, a distance of about 60 miles.

The project would be remotely operated from Douglas County's operating center in Roseburg. An attendant, however, would be onsite to assist in the operation as needed and to perform minor maintenance activities. Two additional stream gaging stations would be installed--one upstream of the reservoir to measure inflow, and the other on Cow Creek near Glendale to monitor flow and water temperature. Existing stations near Azalea and Riddle would be maintained.

The total design and construction cost, including property acquisition in January 1982 dollars, is estimated at $27,870,000. The cost per usable acre-foot amounts to $689. The earliest reasonable date to start construction would be 1984.

Gold Mountain Alternative

The Gold Mountain alternative consists of a 38,000-acre-foot reservoir, a 225-foot-high earth embankment dam, an unlined spillway, an outlet works which includes a multiple-level intake, fish capture facilities, recreation facilities, power generation facilities, and necessary road construction. The damsite is located on the West Fork of Cow Creek about 15 miles upstream from its confluence with Cow Creek.

This alternative would serve Cow Creek water users downstream from the confluence of the West Fork with Cow Creek and South Umpqua River water users from the mouth of Cow Creek downstream to its confluence with the North Umpqua River. Functions served by this alternative would be the same as those served by the proposed plan.

The Gold Mountain plan would assure an adequate municipal and industrial water supply for Riddle on Cow Creek and for municipal and industrial organizations located along the South Umpqua River from the mouth of Cow Creek downstream to its confluence with the North Umpqua River. However, the city of Glendale, which has the greatest need for water, would receive no benefit from a reservoir at this site because it is located on Cow Creek upstream of the West Fork confluence with Cow Creek.

Irrigation water would be provided to 3,300 irrigable acres that are presently dry, 700 acres that require supplemental irrigation, and 700 acres zoned R-2/5 that are presently dry.

Power generation facilities would consist of a powerhouse containing two 900-kW units, a switchyard, and power transmission line. The powerplant would generate an average of 7,238,000 kWh annually. No reservoir storage would be reserved specifically for recreation or power production.

The recreation development plan would be essentially the same as that for the Galesville proposal. However, due to the relative remoteness of the Gold Mountain site, long-term recreation benefits would be lower. The recreation plan would accommodate an average of 33,750 recreation-days of additional use annually.

This alternative would result in an annual flood control benefit of $800,000.

Project construction would result in the inundation of approximately 490 acres of commercial timber. Since none of the land required to construct the Gold Mountain alternative is used for residential purposes, resident relocation would not be required.

Gold Mountain dam would block access to 7.6 miles of steelhead habitat in the upper West Fork of Cow Creek. This habitat loss would be offset by fishery enhancement through improved streamflows and the release of hatchery steelhead juveniles in the West Fork.

The fish plan would be essentially the same as for the Galesville proposal--fish capture facilities would be constructed and 4,000 acre-feet of storage capacity in the reservoir would be allocated for streamflow enhancement. However, steelhead trout rather than coho salmon would be utilized in the program.

Flow and water temperature improvements would result in fish habitat improvement from the Gold Mountain damsite downstream to the mouth of Cow Creek, a distance of about 40 miles.

Operation and maintenance considerations would be similar to the proposed plan.

The total design and construction cost, including property acquisition in January 1982 dollars, is estimated at $36,362,000. The cost per usable acre-foot amounts to $970. The earliest feasible date to start construction would be early in 1985.

Honeysuckle Alternative

The Honeysuckle alternative consists of a 38,000-acre-foot reservoir, a 277-foot-high rockfill embankment dam, an unlined spillway, an outlet works which includes a multiple-level intake, fish passage facilities, recreation facilities, power generation facilities, and necessary road construction. The damsite is located on the West Fork of Cow Creek about 3 miles upstream from its confluence with Cow Creek.

This alternative would have the same water service area as the Gold Mountain alternative. The project functions served by this alternative would be the same as those served by the proposed plan.

The Honeysuckle alternative would have the same municipal, industrial, and irrigation water supply benefits as those previously discussed for the Gold Mountain alternative. Similarly, Glendale would receive no benefit from a reservoir at this site.

Power generation facilities would consist of a powerhouse containing three 2,500-kW units, a switchyard, and power transmission line. The powerplant would generate an average of 27,948,000 kWh annually. No reservoir storage would be reserved specifically for recreation or power production.

Although opportunities for recreation facility development are somewhat limited at the Honeysuckle site by steep topography, facility development and recreation-day use are expected to be roughly the same as for the proposed plan.

This alternative would result in an annual flood control benefit of $800,000.

Since none of the land required to construct the Gold Mountain alternative is used for residential purposes, resident relocation would not be required.

Anadromous fish passage facilities would be provided in this plan. Thus, Honeysuckle dam would not block access to anadromous fish habitat in the upper West Fork of Cow Creek. In addition, 4,000 acre-feet of storage capacity in the reservoir would be allocated for streamflow enhancement. This water would be released during low flow, high temperature periods to maintain flows and water temperatures suitable for anadromous and resident fish populations. Flow and water temperature improvements would result in fish habitat improvement from the damsite downstream to the mouth of Cow Creek, a distance of about 29 miles.

Operation and maintenance considerations would be similar to the proposed plan. The total design and construction cost, including property acquisition in January 1982 dollars, is estimated at $119,358,000. The cost per usable acre-foot of water amounts to $3,270. The earliest feasible date to start construction would be early in 1985.

Applegate Creek Alternative

The Applegate Creek alternative consists of a 9,000-acre-foot reservoir, a 125-foot-high earth embankment dam, a concrete-lined spillway, an outlet works which includes a multiple-level intake, and recreation facilities. The damsite is located on Applegate Creek about 1/2 mile upstream from its confluence with Cow Creek.

This plan would satisfy essentially the same level of municipal and industrial water service as the proposed action. However, because of a much smaller reservoir, the scope of other functions in the Applegate alternative is significantly reduced. Supplemental irrigation service would be provided to 1,000 acres, but no new land irrigation would occur. The potential for significant flood control would not exist, and hydroelectric power generation would not be economically feasible. Storage space allocated to streamflow enhancement for fish would be reduced to 400 acre-feet. Recreation development and recreation-day use would be similar to the proposed plan.

Project construction would result in the inundation of approximately 35 acres presently in agricultural use. The reservoir would inundate a portion of the Applegate Creek Road and the telephone and electric lines that parallel it. The road would be relocated for a distance of about 2.1 miles. Existing utility lines would be relocated within the new right-of-way. Dam and reservoir construction would require relocation of three rental households.

A dam at this site would block access to 6 miles of winter steelhead, coho, and sea-run cutthroat trout habitat. However, flow and water temperature improvements would result in fish habitat improvement in Cow Creek for a distance of about 35 miles.

The total design and construction cost, including property acquisition in January 1982 dollars, is estimated at $8,181,000. The cost per usable acre-foot of water amounts to $1,023. The earliest feasible date to start construction would be 1984.

No Action Alternative

With this alternative there would be no construction of a water impoundment facility by Douglas County.

If no reservoir were constructed, there are few actions that could be taken by the county (or others with jurisdiction) that have not already been taken to reduce current water shortages and avoid a worsening situation. Conservation measures have all but been exhausted--lumber mills and other industries have instituted water conservation policies; the majority of irrigation is accomplished by efficient sprinkler methods (the exception being three small open ditches, the largest of which irrigates only 200 acres); and cities have routinely curtailed water for commercial operations and watering lawns during water-short months. Nevertheless, the county would continue to promote and encourage water conservation programs for both municipal and industrial uses and irrigation practices.

Other steps remaining which Douglas County could take to help alleviate water shortages would be to (1) impose a building moratorium to curtail water consumption in the unincorporated areas where surface water is required as a source of supply; (2) direct growth and development to the northern and coastal portions of the county where water supplies are typically more adequate through planning and zoning authority; (3) prohibit industry, through administrative changes, from making changes that would require more water; (4) petition the Oregon Water Policy Review Board to deny any new requests for appropriations from all or parts of the South Umpqua River basin; and (5) seek once again (although recently unsuccessful) to obtain approval from the State Land Conservation and Development Commission to allow subdivision of farm and forest land into parcels less than 80 acres, which would make homesites available that could use individual wells as a source of supply.

The incorporated cities within Douglas County could take several independent actions to control water consumption and alleviate part of the existing problem. Since the cities have jurisdiction over the greatest population and developable land[1/] in the south county area, they could have a large impact on future water consumption. The cities could impose building moratoria within their limits and refuse to extend water service outside their limits. Where they (as opposed to a water district) control the water resource, they could deny requests from industrial/commercial users for additional water for plant or process expansion. Incorporated areas could also build their own storage reservoirs to help meet summertime shortages.

[1/] *Although it is true that the county has jurisdiction over a greater land area, Oregon's planning law has insured that the bulk of new development will occur in or adjacent to existing cities. Consequently, there are more developable parcels in the cities and within their urban growth boundaries than in the rural area.*

Alternatives Considered but Excluded from Detailed Study

The following damsites and potentials in the Cow Creek basin were considered but eliminated from detailed study (see figure 2 for site locations).

1. Dismal reservoir was found to be less viable than Galesville because of the minimal depth achievable and because it would be less reliable in meeting the water needs of southern Douglas County.

2. Upper Windy Creek, Lower Windy Creek, and Middle Creek damsites are less reliable in meeting the necessary storage requirements.

3. Elk Valley Creek damsite has potential water quality problems and a low annual stream yield that makes it less viable than Gold Mountain.

4. Expanded use of ground water to meet water demands could serve as a supplemental but not a primary water source.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Table 2, which appears at the end of this section, is a narrative comparison of environmental impacts related to the alternatives including the proposed plan.

Galesville Alternative--The Proposed Plan

The Galesville site is located on Cow Creek at river-mile 60. Cow Creek originates in the Klamath Mountains and flows about 77 miles across southern Douglas County to its confluence with the South Umpqua River near Riddle, Oregon. The Cow Creek basin covers about 456 square miles.

The most notable feature of the local climate is the seasonal distribution of precipitation. About 60 percent of the annual precipitation occurs during the November through February period. Only 4 percent occurs during the June through September period.

The mean annual discharge of Cow Creek at Azalea, located about 1.5 miles downstream from the Galesville damsite, is 109 ft^3/s. Low streamflows in Cow Creek typically occur from June through October. Much of the excess winter flow would be stored in the reservoir for release during low flow periods. In this way, adequate flows for municipal, industrial, irrigation, and fish uses could be maintained throughout the year. In an average water year, reservoir releases could increase streamflows by about 70 ft^3/s during the lower flow summer months.

Flooding has been a recurring problem throughout the South Umpqua River basin. The December 1964 and January 1974 floods are the two largest floods of record. The December 1964 flood produced peak discharges of 14,000 ft^3/s, 37,200 ft^3/s, and 105,000 ft^3/s at the Glendale, Riddle, and Brockway gages, respectively. At these same gages the January 1974 flood produced peak discharges of 17,200 ft^3/s, 38,300 ft^3/s, and 105,000 ft^3/s. The water level at the Azalea gage has reached flood levels at least six times since 1955.

Galesville reservoir would regulate about 17 percent of the Cow Creek basin. The Cow Creek reach from the dam downstream to the mouth of West Fork Cow Creek, a distance of about 30 miles, would receive the greatest flood reduction benefit. Below the mouth of West Fork Cow Creek, the benefits would be less significant.

With the Galesville Project, the December 1964 flood would have produced peak discharges of 8,430 ft^3/s, 33,000 ft^3/s, and 99,900 ft^3/s at the Glendale, Riddle, and Brockway gages, respectively. At these same gages, the January 1974 flood would have produced peak discharges of 10,300 ft^3/s, 30,600 ft^3/s, and 96,800 ft^3/s. Overall, 100-year flood peaks would be reduced to the level of unregulated 18-year flood peaks.

Cow Creek water is generally of high quality. All chemical parameters measured are within the allowable limits specified in the Oregon Drinking Water Standards. Ammonia and dissolved oxygen levels contribute to water quality problems in the South Umpqua River.

The water quality parameter of principal concern in the main stem of Cow Creek is water temperature. Below river-mile 55, excessive summer water temperatures preclude its use by juvenile anadromous fish and resident trout. Measurements made in Cow Creek below Glendale in August 1981 show a maximum daily water temperature of 87° F. The average maximum daily temperatures during July and August 1981 were 76.6° F and 80° F, respectively. Dissolved oxygen concentrations in Cow Creek and the South Umpqua River are typically low in summer months due to high water temperatures.

During construction, temporary turbidity would occur in localized areas of Cow Creek. Turbidity impacts from construction are expected to be short term and minor. Standard soil and erosion control measures would be utilized during construction.

The proposed project would impact water quality in the reservoir pool and in Cow Creek below the dam. Initially, as with any new reservoir, turbidity increases, nutrient enrichment, and reduced dissolved oxygen levels would occur. Studies to assess potential changes in turbidity and water temperatures indicate that no adverse water quality impacts should occur in the reservoir or in Cow Creek below the reservoir due to long-term project operations. Turbidity can be kept at acceptable levels, and water temperatures downstream would be significantly lowered to benefit aquatic fauna.

Water released from the dam would be cold and well aerated. These more highly oxygenated, colder flows would increase dissolved oxygen levels in Cow Creek and, to a small extent, in the South Umpqua River. Nutrient and dissolved oxygen levels in the new reservoir are not expected to pose a long-term problem.

The Galesville proposal would not have a significant effect on water quality through surface irrigation return flows. Irrigation return flows would be transmitted to surface waters principally via the ground water and would contain an almost undetectable concentration of nutrients and salts.

The two proposed movable intakes for the outlet works would permit the selection of discharge water from various levels in the reservoir to control potential water quality impacts (turbidity, temperature, and low dissolved oxygen) in Cow Creek below the dam.

Potential impacts due to low dissolved oxygen concentrations in the reservoir would be limited by removing as much organic debris as possible from the reservoir basin before the reservoir is filled. To insure that reservoir releases are properly aerated, the outlet works would discharge through an aeration-type control valve. In addition, the turbines would be designed to aerate flows passing through them.

Ground-water supplies in the Cow Creek and South Umpqua River basins are generally limited to quantities sufficient to meet only individual rural domestic needs. Municipal, industrial, and agricultural developments in the project area are dependent on basin surface-water supplies.

Current demands for water in the Cow Creek and South Umpqua River basins frequently exceed available streamflows during the months of July through October. The most recently obtained water right holders are the first to have their withdrawals limited. Industrial users with water rights as old as 1958 are typically required to stop withdrawals from August through mid-October on the South Umpqua River. Continued municipal withdrawals are allowed for in-the-house use only. Future water demands are expected to make water shortages and withdrawal restrictions even more severe. Winter flows, on the other hand, exceed water requirements.

The proposed reservoir would have a storage capacity of 42,225 acre-feet. This capacity would be sufficient to meet irrigation as well as most municipal and industrial water needs in the study area. Four thousand acre-feet of storage capacity in the reservoir would be allocated for streamflow enhancement.

Communities and group systems most benefited are those that lack a reliable current or future supply. These include Glendale, Green, South Umpqua Water Association, Tri-City, Roberts Creek Water District, and the Roseburg unincorporated area. Secondary effects of an increased and more reliable water supply include the long-term maintenance of farmlands in agricultural production and support of future population growth and industrial expansion in the communities served.

Two types of rock are present at the damsite. The first type, upon which the proposed dam would be built, is a strong, fine-grained volcanic rock known as andesite. The second type, found in the reservoir basin and also just downstream of the damsite, is a fine-grained rock of sedimentary origin known as slate and another form of the same material known as phyllite. Based on geologic investigations conducted by the International Engineering Company, the andesite has been found to be a firm and watertight rock that has adequate strength to support the weight of a dam.

Soils within the proposed Galesville reservoir area are composed of silt, sand, and gravel deposits. The soil erosion potential varies from moderate to severe. Some soil erosion would occur during project construction. These effects are expected to be short term and minor. Measures would be taken to minimize erosion and siltation during construction.

One confirmed and two potential landslides have been mapped in the reservoir area, but no indication of recent movement has been found. Reservoir water levels could cause adjacent ground-water levels to rise. This rise could adversely affect the stability of the slopes surrounding the reservoir. In any case, identified problem areas would be stabilized or protected during project construction to minimize soil movement into the reservoir pool.

Approximately 5 miles upstream from the proposed damsite is a crushed rock quarry owned by C&D Lumber Company. The quarry lies just outside the impoundment area and would remain at least partially usable during the operational phase of the project. However, a rock stockpile associated with the quarry would be inundated. The stockpile would be either purchased or moved.

Air quality is generally well within the primary and secondary air quality standards established by the Environmental Protection Agency. During construction, there would be localized lowering of air quality; these effects would be short term and minor. Project contractors would be required to comply with applicable Federal, State, and local air quality regulations and to use such methods and devices as are reasonably available to minimize air quality effects related to construction. Project operation would have an adverse effect on air quality within the project service area due to an indirect increase in population and industrial growth.

Visual and sound qualities of the area are generally high. The landscape is a vegetative mosaic of agricultural and forest plant communities. Construction sounds would result in temporarily high noise levels, but the degree of impact would be minor and largely determined by personal tolerances. Project-induced noise effects would primarily originate from increased vehicular traffic in the reservoir area and motorboating. Blocking the narrow upper end of the reservoir to motorboat use would reduce noise effects on residents there.

No primitive areas, natural areas, high viewer sensitivity routes or areas, or high scenic quality zones have been designated in the project area. The Bureau of Land Management maintains a visual resource management (VRM) program for lands under its jurisdiction. This program provides a guideline for land managers to protect important visual qualities. The Bureau of Land Management assigns a VRM classification to an area ranging from class I (highest visual quality) to class IV (lowest visual quality). Management of areas with high VRM ratings is more restrictive in terms of preserving visual qualities. The project area is a class III VRM area.

Adverse visual effects during construction would be temporary and include smoke and dust, stream turbidity, debris and excavation materials, rechannelization of the creek through a conduit, and the presence of machinery and stockpiled materials. Long-term visual impacts would include the creation of a 640-acre reservoir, soil exposure due to reservoir drawdown, and addition of manmade structures to the landscape. Recreation opportunities at the reservoir would bring several thousand visitors to the area each year. As these people use the reservoir, they would become sensitive to land management practices in the area which could affect the visual qualities they enjoy. This increased viewer sensitivity could lead to pressure to upgrade the VRM classification to a class II. This higher VRM rating could influence timber management practices on 3,000 acres adjacent to the reservoir.

The Galesville site has been extensively altered by grazing and agriculture. Ownerships range in size from 4 to 165 acres, which precludes large-scale commercial irrigated agriculture. No prime or unique farmlands occur within the impoundment area, and little commercial timber is left within the impoundment perimeter.

Riparian (streamside) vegetation is well developed along Cow Creek but is restricted to a narrow band immediately adjacent to the creek. Dominant species include cottonwood, red alder, willow, and big-leaf maple. Hillsides are dominated by even-aged stands of Douglas-fir. Incense cedar, madrone, and Pacific yew are also common. Ponderosa pine, western hemlock, sugar pine, and oak are present in lesser amounts.

Small scattered wetlands totaling about 9.5 acres are located in the proposed impoundment area. These wetland areas are discontinuous and offer little value as wildlife habitat. Most have been adversely affected by human and livestock activity.

According to the U.S. Fish and Wildlife Service and the Oregon Nature Conservancy, no federally or State listed threatened or endangered plants are known to occur in the study area.

The proposed reservoir would inundate about 295 acres in agricultural use, 330 acres of second growth Douglas-fir, 15 acres of riparian growth along Cow Creek, and about 9.5 acres of scattered wetland habitat. However, the project would benefit 5,084 irrigable acres that are presently dry, 1,183 acres that require supplemental irrigation, and 955 acres zoned R-2/5 that are presently dry. Some additional clearing of vegetation would be required to construct the proposed dam, powerhouse, switchyard, recreation and fish facilities, and access roads including an approximate 4.5-mile relocation of Cow Creek Road.

TYPICAL PASTURELAND ON COW CREEK VALLEY FLOOR WITH MIXED-AGE DOUGLAS-FIR ON SURROUNDING HILLSIDES. COW CREEK ROAD IS IN THE FOREGROUND. THIS AREA IS WITHIN THE PROPOSED POOL.

COW CREEK AND RIPARIAN VEGETATION. OPEN CANOPY ALLOWS THE CREEK TO REACH HIGH TEMPERATURES IN SUMMER AND FALL. FLOW IN THE CREEK IS MODERATE DUE TO ONSET OF WINTER RAINS (58.8 cfs; OCTOBER 28, 1981). THIS AREA IS WITHIN THE PROPOSED POOL.

GALESVILLE PROJECT SETTING

DOUGLAS COUNTY OREGON

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Except where clearing operations are required to construct project facilities, all trees, native shrubbery, and other vegetation would be preserved. Any land disturbed but not permanently occupied by new facilities would be revegetated upon completion of construction.

The Cow Creek basin supports a variety of wildlife species. Big game animals include Roosevelt elk, black-tailed deer, and black bear. No current data exists on big game populations within the project area.

Furbearers and nongame mammals include bobcat, mink, raccoon, otter, beaver, muskrat, and cougar. Numerous other species of nongame mammals, birds, reptiles, and amphibians inhabit the area. Little data exists on the populations and abundance of nongame mammals in southwestern Oregon.

Ruffed grouse, blue grouse, Mountain quail, California valley quail, and ring-necked pheasant are the predominant upland game birds inhabiting the Cow Creek basin. Low populations of quail and pheasant are due to limited habitat. Waterfowl use within the basin is limited to occasional nesting along the main stem of Cow Creek.

Animal species federally listed as threatened or endangered that occur in southern Douglas County include the bald eagle, Columbia white-tailed deer, and the peregrine falcon. In addition, the northern spotted owl, listed by the State of Oregon as a threatened species, may be present in the area. None of these species have been sighted in the vicinity of the Galesville site.

Wildlife that utilize the 640 acres of habitat to be inundated would be adversely impacted. Some of the less mobile animals would be killed directly during construction and filling of the reservoir. Animals that move to adjacent habitat would compete with animals already occupying that habitat, the net effect being a reduction in area wildlife populations. Recreation development would result in the displacement of some individual animals and a reduction in wildlife use in the reservoir area.

About 45 acres would be cleared in the upper reservoir area under the direction of the Oregon Department of Fish and Wildlife to improve wildlife habitat. Excess spoil material would be used in this area to create islands for wildlife habitat.

Cow Creek supports game fish populations of fall chinook salmon, coho salmon, winter steelhead trout, sea-run cutthroat trout, resident cutthroat trout, and smallmouth bass. No threatened or endangered fish are known to occur in the study area.

Very low summer flows and high water temperatures (up to 87° F) in the main stem of Cow Creek limit its ability to support resident and anadromous salmonids. High water temperatures preclude the use of Cow Creek downstream from river-mile 55 (5 miles below the proposed dam) for juvenile chinook salmon, steelhead, and coho salmon rearing. Anadromous fish production upstream from the damsite is low.

No long-term or permanent impacts to the aquatic environment are expected to occur during project construction.

Galesville dam would block access to 28.7 miles of anadromous fish spawning and rearing habitat in upper Cow Creek. This loss would be more than offset by fishery enhancement through improved streamflows and the release of hatchery coho juveniles throughout the Cow Creek subbasin. Overall, flow and water temperature improvements would significantly improve fish habitat between the dam and the mouth of Cow Creek, a distance of about 60 miles. Habitat improvements are expected to significantly increase the abundance of adult winter steelhead, fall chinook, and coho salmon. A fish habitat index was used to show net changes in available fish habitat under pre- and postproject conditions. The index of added fish habitat is 143,728 for the Galesville plan.

Reservoir operations would reduce winter and spring streamflows below the damsite but would not significantly alter existing downstream anadromous fish passage, spawning, and incubation conditions. During an average water year, reservoir releases from June through October would increase flows by about 70 ft^3/s and maintain water temperatures between 63.3° F and 66.2° F in the river reach from the dam downstream to the mouth of Cow Creek. Steelhead and resident cutthroat trout would benefit the most from these improvements.

Resident fish populations upstream from the reservoir would not be adversely affected. The reservoir pool is expected to enhance resident fish populations by providing additional habitat. Powerplant turbine mortalities would result among resident fish migrating out of the reservoir.

To partially mitigate for the loss of anadromous fish production above the damsite, adult coho salmon would be trapped at the damsite and transported to the Rock Creek Fish Hatchery for spawning. Coho juveniles raised at the hatchery would be released throughout the Cow Creek subbasin in tributaries located below the damsite. In addition, 4,000 acre-feet of storage capacity would be allocated for streamflow enhancement. This water would be released during low flow, high temperature periods to maintain flows and water temperatures suitable for anadromous and resident salmonids in Cow Creek below the damsite.

As a result of section 7 consultation with the U.S. Fish and Wildlife Service in accordance with the Endangered Species Act, it is concluded that there would be no adverse effect on any threatened or endangered plant, fish, or wildlife species.

The development of recreation facilities at the reservoir would increase park acres in Douglas County by about 60 acres and provide picnicking, boating, swimming, and hiking opportunities. All these opportunities are identified as needs in southern Douglas County. The proposed recreation plan would accommodate an average of 45,000 recreation-days of additional use annually. Reservoir stocking by the State would offer additional sport fishing opportunities.

The county would provide law enforcement and a resident caretaker during the recreation season at the reservoir to lessen problems with traffic, excessive noise, trespass, and vandalism.

An archeological site and barn are being evaluated to determine if they are eligible for inclusion on the National Register of Historic Places. These evaluations will be completed in 1983. If eligible, a plan to mitigate any project-related impacts would be prepared in consultation with the State Historic Preservation Officer. Further, if cultural resources are located during project construction, work in the immediate area would be halted and the State Historic Preservation Officer contacted. The procedures of the Advisory Council on Historic Preservation (36 CFR 800) would be followed. The find would be evaluated for National Register significance and, if necessary, mitigating measures would be completed.

Eight households involving 20 people would require relocation. The lifestyle now enjoyed by these people in their present setting would be seriously impacted by relocation. This group is deeply disturbed with the prospect of losing their homes; being extracted from a community they have been instrumental in building; and dealing with unknown problems of resettlement, possible reemployment, and social reestablishment.

The relocation program would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. In addition, the county would negotiate property compensations with relocatees at the earliest possible date, compensate relocatees and absentee owners for legitimate damage claims, and provide assistance to those seeking relocation in the area.

During project construction, residents adjacent to the reservoir would have their quality of life affected as a result of relocation of neighbors; increased traffic, noise, and dust; altered landscape; and presence of strangers.

No significant impacts on school and health facilities, police and fire protection, transportation, and housing are expected due to the short-term influx of construction workers. No long-term adverse effect on community institutions and organizations is expected. Similarly, the long-term community settlement pattern is not expected to be significantly altered as a result of the project. Operational social implications, however, would be significant in terms of effect on economics, employment, population, infrastructure, and related changes in social structure.

Gold Mountain Alternative

The Gold Mountain site is located on the West Fork of Cow Creek at river-mile 14. The West Fork originates in the Coast Mountain Range and flows southeast for about 23 miles to its confluence with Cow Creek near the town of West Fork, Oregon. The West Fork Cow Creek basin covers about 86.9 square miles. The mean annual discharge is estimated to be 65.3 ft^3/s at the damsite.

West Fork flow patterns are similar to rainfall patterns. Peak flows generally occur between October and June while low streamflows typically occur from June through October. Although high flows do occur on the West

Fork, flooding is not a problem due to the lack of human population in the watershed. These high flows, however, contribute to flooding problems along the lower main stem of Cow Creek and the South Umpqua River.

Much of the excess winter flow would be stored in the reservoir for release during the low flow months. In this way, adequate flows for fish, agricultural, municipal, and industrial uses could be maintained throughout the year. In an average water year, reservoir releases could increase streamflows by about 68 ft^3/s during the low flow summer months.

The drainage area controlled by a reservoir at the Gold Mountain site would be approximately 20.9 square miles as opposed to 74.3 square miles under the proposed plan, and downstream flood control benefits would be significantly less. No flood control would be provided to the Glendale area since it is located on Cow Creek upstream of the West Fork confluence.

West Fork Cow Creek water quality is generally high. It has no physical or chemical abnormalities that would preclude its use for project purposes. The principal water quality parameter of concern is water temperature. High summer temperatures periodically limit anadromous and resident fish use in the lower 8 miles of the creek. Excessive summer water temperatures are a problem in the main stem of Cow Creek below river-mile 55.

The water quality impacts during construction and operation would be essentially the same as those for the proposed plan. A multilevel intake on the dam's outlet works would control potential water quality impacts (temperature, turbidity, low dissolved oxygen). A balance (control) point would be established between the damsite and Riddle, Oregon, to monitor downstream water quality conditions. Other methods to mitigate low dissolved oxygen concentrations would be the same as described for Galesville.

The reservoir would have a storage capacity of 38,000 acre-feet, which would be sufficient to meet irrigation, municipal, and industrial water supply needs from the confluence of the West Fork with Cow Creek downstream to the confluence of the South Umpqua River with the North Umpqua River. Glendale would recieve no municipal and industrial benefit from a reservoir at this site. Four thousand acre-feet of storage capacity in the reservoir would be allocated for streamflow enhancement.

Geologic studies indicate that the rocks underlying the reservoir area would be watertight. However, slopes in the reservoir area are mantled primarily by thin residual soils which are commonly involved in surficial landslides. Under rising water-table conditions, small slides into the reservoir would not be expected to adversely affect dam safety.

Although subsurface exploration has not been done at the damsite, it is expected that the site would be suitable for an earth embankment dam. The foundation could be expected to be watertight with a minimum of grouting or foundation treatment.

Soils at the site consist of small deposits of alluvial silts, sands, and gravels. Shallow residual soils of silt and clay predominate the hillsides. The erosion potential of these soils varies from moderate to severe. Soil impacts would be the same as those described for the Galesville proposal. Measures would be taken to minimize erosion and siltation during project construction.

No known mineral or aggregate resource sites would be inundated except for construction borrow areas.

Air, sound, and visual effects related to project construction would be essentially the same as those described in the proposed plan. No significant long-term noise effects are expected because no residences are located near the impoundment area.

Long-term visual impacts would include the creation of a 530-acre reservoir, soil exposure due to reservoir drawdown, and the addition of manmade structures to the landscape. A potential upgrade in the VRM classification at the reservoir from class IV to class II could affect timber management practices on 3,400 acres. The construction of a power transmission line through currently forested terrain would be a significant visual impact that would be avoided with the proposed plan.

The impoundment area has been extensively logged within the last 10 years. Douglas-fir has been replanted and is found in even-aged brush field communities. Pacific yew, tanbark oak, and incense cedar are common overstory associates. No farmlands are located within or in the vicinity of the impoundment area.

Riparian communities are more extensively developed along the West Fork than along Cow Creek in the vicinity of the Galesville site. Alder and big-leaf maple dominate the overstory, with serviceberry, snowberry, blackberry, sedge, rush, and horsetail present in the understory. Wetlands periodically occur as an understory component of riparian communities; however, their areal extent within the impoundment area is not known. No federally or State listed threatened or endangered plants are known to occur in the study area.

The reservoir would inundate 530 acres including 490 acres of commercial timberland predominantly in second growth Douglas-fir and 40 acres of riparian growth along the West Fork. About 145 acres of Douglas-fir would be permanently disturbed and 145 acres temporarily disturbed within the transmission line right-of-way. Some additional clearing of vegetation would be required for project facilities including a 1.5-mile relocation of the West Fork Road. The project would benefit 3,300 irrigable acres that are presently dry, 700 acres that require supplemental irrigation, and 700 acres zoned R-2/5 that are presently dry.

Wildlife species inhabiting the Gold Mountain area are essentially the same as those described for the proposed plan. Overall, wildlife effects would be essentially the same as those described for the proposed plan. In addition, an impoundment at this site could interfere with elk migration routes north of the reservoir.

Winter steelhead trout, coho salmon, and resident trout are found throughout the West Fork Cow Creek watershed although debris jams can limit access. Fall chinook salmon and sea-run cutthroat trout utilize the lower reaches of the watershed but do not occur in the impoundment area. No State or federally listed threatened or endangered fish species inhabit the West Fork or its tributaries.

Construction-related effects on the aquatic environment would be the same as those described for the proposed plan.

Gold Mountain dam would block access to 7.6 miles of winter steelhead habitat in the upper West Fork of Cow Creek. This habitat loss would be offset by fishery enhancement through improved streamflows and the release of hatchery steelhead juveniles throughout the Cow Creek subbasin. Flow and water temperature improvements would result in fish habitat improvement between the dam and the mouth of Cow Creek, a distance of about 40 miles. Reservoir releases are expected to enhance 40 miles of winter steelhead and cutthroat trout habitat, 27 miles of fall chinook habitat, and 37 miles of coho habitat. The index of added fish habitat is 70,470 for this alternative.

Resident fish populations upstream from the reservoir would not be adversely affected. The reservoir pool could enhance resident fish populations by providing additional habitat. Powerplant turbine mortalities would result among resident fish migrating out of the reservoir.

Measures to mitigate and enhance the aquatic environment would be essentially the same as those described for the proposed plan.

The Gold Mountain proposal would not have an adverse effect on any threatened or endangered plant, fish, or wildlife species.

Recreation development would be basically the same as for the proposed plan. However, long-term recreation benefits would be lower due to the relative remoteness of the impoundment. The recreation plan would accommodate an average of 33,750 recreation-days of additional use annually. As with the proposed plan, the county would provide law enforcement and a resident caretaker at the reservoir to lessen problems with traffic, vandalism, excessive noise, and trespass.

No historical or archeological sites eligible for inclusion on the National Register of Historic Places are located within or in the vicinity of the impoundment. Thus, no adverse impacts on cultural resources are anticipated. Cultural resource protection measures during project construction would be the same as for the proposed plan.

Since none of the land required to construct the Gold Mountain proposal is used for residential purposes, resident relocation would not be required.

To provide an unchanged timber access pattern, approximately 1.5 miles of the West Fork Road would be relocated along the north shoreline of the reservoir. Traffic on the West Fork Road is expected to increase after project construction. Traffic delays on peak recreation-days are anticipated due to the road's low vehicle capacity.

No significant impacts on school and health facilities, police and fire protection, and housing are expected due to the short-term influx of construction workers.

Honeysuckle Alternative

The Honeysuckle site is located on the West Fork of Cow Creek at river-mile 3. About 85 percent (73.9 square miles) of the West Fork basin is located upstream of the damsite as compared to 24 percent at the Gold Mountain damsite. The mean annual streamflow is estimated to be 230 ft^3/s at the damsite. In an average water year, reservoir releases could increase streamflows by about 90 ft^3/s during the low flow summer months.

The drainage area controlled by a reservoir at the Honeysuckle site closely matches the drainage area controlled by a reservoir at the proposed Galesville site and is significantly greater than the drainage area controlled by a reservoir at the Gold Mountain site. However, the flood control benefit realized under this alternative would be less than the proposed plan since no potential for flood control in the Glendale area would exist. Flood control benefits below the confluence of the West Fork with Cow Creek would be similar to those produced by the proposed plan.

Water quality conditions described under the Gold Mountain alternative apply to the Honeysuckle alternative. Water quality impacts anticipated during project construction and operation would be essentially the same as those described for the proposed plan. Measures to reduce adverse water quality effects would be identical to those described for Gold Mountain.

A reservoir at the Honeysuckle site would have the same storage capacity (38,000 acre-feet) and meet the same level of water needs in the study area as described under the Gold Mountain alternative. Four thousand acre-feet of storage capacity in the reservoir would be allocated for streamflow enhancement.

The dam and reservoir would be in a narrow, steep canyon and underlain by sedimentary rocks. Unconsolidated material in the area consists of some alluvial silts, sands, and gravels along the creek channel and thin residual soils consisting of silts and clays on the surrounding hillsides. Clay and gravelly loams are present on steep to moderately steep slopes in the area. The erosion potential of the gravelly loams is severe and moderate for the clayey soils.

Overall, soils in the area appear favorable for the construction of an adequate watertight reservoir. However, the residual soils and accumulated slopewash could contribute to small landslides into the reservoir from rising ground-water levels. Although no subsurface exploration has been done at the damsite, it is expected that the foundation would be suitable for a rockfill structure and watertight with a foundation grouting program.

No known mineral or aggregate resource sites would be inundated except for a borrow area used for project construction.

Air, sound, and visual effects related to construction would be essentially the same as those described for the proposed plan. No significant long-term noise effects are expected because no residences are located near the impoundment area.

Long-term visual effects would be essentially the same as those described for the Gold Mountain alternative. Included are the creation of a 400-acre reservoir and a potential upgrade in the VRM classification at the reservoir from class III to class II. This VRM change could affect timber management practices on 6,300 acres.

Douglas-fir is the dominant species in the area and occurs predominantly in even-aged stands from 15 to 50 years old. Most of the area has been extensively logged and replanted to Douglas-fir, with approximately 28 percent remaining in old growth. Old-growth Douglas-fir dominates the north-facing slopes of the canyon; lack of accessibility limits its availability for logging. No federally or State listed threatened or endangered plants are known to occur in the study area.

Riparian communities are continuous upstream of the damsite. Willow, alder, and maple dominate. Wetlands in the form of rush-dominated meadows are found in flood plains underneath and adjacent to woody riparian communities. No farmlands occur within or near the Honeysuckle impoundment area.

The reservoir would inundate approximately 400 acres, including 370 acres of commercial Douglas-fir forest and 30 acres of riparian growth. Any wetlands located within the reservoir pool would be lost. Transmission lines to the dam and powerhouse would be permanently disturb about 240 acres of Douglas-fir forest. Lands benefiting from irrigation releases would be the same as described for Gold Mountain.

Wildlife species inhabiting the Honeysuckle area are essentially the same as those described for the proposed plan. Animals that use the habitat to be lost due to inundation and facility construction would be adversely affected. Overall, wildlife effects related to this plan would be essentially the same as those described for the Galesville proposal.

The Honeysuckle site is located in a section of the West Fork that experiences high summer water temperatures. Rough fish species are abundant in this section of the creek and include dace, shiners, squawfish, and suckers. Anadromous fish found in the West Fork are described under the Gold Mountain alternative.

Construction-related effects on the aquatic environment would be the same as those described for the proposed plan.

Anadromous fish passage facilities would be provided. As a result, anadromous fish habitat losses would be limited to the 5.8 miles of habitat inundated. This habitat is utilized by approximately 50 winter steelhead and less than 20 coho salmon.

Reservoir releases would improve habitat conditions along the lower 3 miles of the West Fork and enhance fish habitat along the lower 26 miles of the main stem of Cow Creek. Habitat improvements along the lower West Fork would involve water temperature reductions. Improvements along the lower 26 miles of Cow Creek would involve water temperature reductions, improved streamflows, and increased fish habitat availability. The index of added fish habitat is 62,380 for this alternative.

Resident fish populations upstream from the reservoir would not be adversely affected by the project. The large reservoir pool could enhance resident fish populations by providing additional habitat.

Turbine-related mortalities would result among resident and anadromous fish migrating out of the reservoir. In addition, the reservoir environment could have an adverse impact on the survival of outmigrating anadromous smolts.

Measures to mitigate and enhance the aquatic environment would be essentially the same as those described for the proposed plan.

The Honeysuckle proposal would not have an adverse effect on any threatened or endangered plant, fish, or wildlife species.

Recreation development at the Honeysuckle site would be roughly the same as for Galesville and Gold Mountain. In contrast to Gold Mountain, the Honeysuckle impoundment area is easily accessible via County Road 321, and travel times to the site from population centers are not significantly different from Galesville. The recreation plan would accommodate an average of 45,000 recreation-days of additional use annually (the same as for Galesville). Measures to lessen problems with traffic, vandalism, excessive noise, and trespass would be the same as for the proposed plan.

No historical or archeological sites eligible for inclusion on the National Register of Historic Places are located within or in the vicinity of the impoundment area. Thus, no adverse impacts on cultural resources are anticipated. Mitigation measures would be identical to those described under the proposed plan.

Since none of the land required to construct the Honeysuckle proposal is used for residential purposes, no resident relocation would be required.

To provide an unchanged timber access pattern, approximately 4.5 miles of the West Fork Road would be relocated along the north shoreline of the reservoir, and approximately 3.4 miles of Trail Creek Road would be relocated south of the reservoir. While the traffic on West Fork Road and County Road 321 is expected to increase after construction, the capacity of these roads would not be exceeded.

No significant impacts on school and health facilities, police and fire protection, and housing are expected due to the short-term influx of construction workers.

Applegate Creek Alternative

The Applegate Creek site is located on Applegate Creek at river-mile 0.5. The creek originates on the north slope of the Rogue River Mountain Range and flows north for about 7.3 miles to its confluence with Cow Creek. The watershed covers about 12 square miles. The mean annual discharge is 15.3 ft^3/s.

Applegate Creek flow patterns are similar to rainfall patterns. Peak flows generally occur between October and June. The highest flow recorded was 216 ft^3/s in January 1978. Although high flows do occur, flooding is not a problem in the watershed due to the lack of human population--only three residences exist. These high flows, however, contribute to flooding along the lower main stem of Cow Creek and the South Umpqua River.

Much of the excess winter flow would be stored in the reservoir for release during the low flow months. In this way, adequate flows for fish, municipal, and industrial uses could be maintained throughout the year. Some flow would be available for supplemental irrigation use. In an average water year, reservoir releases could increase streamflows by about 18 ft^3/s during the low flow summer months.

The reservoir would have a storage capacity of 9,000 acre-feet, as opposed to 42,225 acre-feet at Galesville and 38,000 acre-feet at the two West Fork locations. The potential for flood control would be negligible.

Applegate Creek water quality is generally high. Of the water quality constituents measured, only turbidity and color periodically exceeded the Oregon Drinking Water Standards. The turbidity and color levels measured are not excessive and do not preclude its use for its designated beneficial purposes.

Water quality impacts during construction would be the same as those described for the proposed plan. However, water quality improvements related to project operation would be less than those described under the other alternatives because the Applegate Creek watershed has significantly higher sediment loads and the reservoir would be significantly shallower and smaller in capacity. As a result, the multiple-level intake on the outlet works would not be as effective in controlling turbidity and water temperatures below the damsite.

Locating an impoundment for municipal water supply on Applegate Creek would automatically raise it to a class I stream (it is now class II) for purposes of water quality protection. To provide the level of protection required for a class I stream, timber management activities within the watershed would be altered.

Measures to reduce adverse water quality effects would be identical to those described under the Galesville proposal.

The reservoir capacity would be capable of meeting essentially the same level of municipal, industrial, and supplemental irrigation needs as the Galesville alternative. However, no new lands in the study area would be irrigated. Four hundred acre-feet of storage capacity in the reservoir would be allocated for streamflow enhancement as compared to 4,000 acre-feet in the proposed plan.

Applegate Creek flows through a fairly broad, alluvial valley flanked by steep slopes. The project site consists mainly of alluvial and residual soil deposits. The alluvium is found on the lowlands, and the residual soils occur on steep slopes. Weathered granitic soils which cover the majority of the reservoir area have a severe erosion susceptibility.

Residual granitic soils have a tendency to erode and form thin, narrow landslides. These soils yield approximately 100 times more sediment than other soils in the region and are likely to slide when disturbed. Because of the low volume of these slides, the safety of a dam would not be threatened but sedimentation would be significant.

No known mineral or aggregate resource sites would be inundated, except for borrow areas used to construct the project. Borrow areas are expected to be located mainly outside the reservoir pool.

Air, sound, and visual effects related to project construction and operation would be essentially the same as those described for the proposed plan. No significant long-term noise effects are expected. The three residences located within the impoundment area would be purchased prior to construction. There are no other residences nearby.

The impoundment area has a well-developed riparian zone adjacent to Applegate Creek. Dominant species include cottonwood, alder, and big-leaf maple. A small wetland is located within a 35-acre meadow currently used for livestock grazing; no other agricultural land occurs within the impoundment area.

Douglas-fir predominates on the hillsides. Ponderosa pine, sugar pine, incense cedar, and madrone are common overstory associates. Elderberry, oceanspray, and oak are characteristic of the lower tree layer with ceanothus, manzanita, and Oregon grape in the shrub layer. No federally or State listed threatened or endangered plants are known to occur in the study area.

The reservoir would inundate approximately 170 acres, including 135 acres of Douglas-fir sawtimber and 35 acres of meadowland. An additional 10 acres of vegetation would be cleared for road construction. The project would benefit approximately 1,000 acres that require supplemental irrigation.

Wildlife species inhabiting the Applegate Creek area are essentially the same as those described for the Galesville proposal. Population densities are higher at the Applegate site due to less development in the area. Animals that use the 180 acres of habitat to be lost would be adversely affected. Overall, wildlife effects related to project construction and operation would be essentially the same as those described for the Galesville proposal.

Applegate Creek joins Cow Creek at approximately river-mile 71. Applegate Creek and its tributaries support game fish populations of coho salmon, winter steelhead troat, sea-run cutthroat trout, and resident cutthroat trout. Rough fish species include dace, shiners, and sculpins. Upstream from the damsite, the stream provides avout 6 miles of anadromous fish habitat and over 8.75 miles of resident trout habitat. No State or federally listed threatened or endangered fish species inhabit Applegate Creek or its tributaries.

Construction-related effects on the aquatic environment would be the same as those described for the proposed plan.

Applegate Creek dam would block anadromous fish access to the creek. It is estimated that about 20 winter steelhead and 20 coho salmon use the creek for spawning. Reservoir releases could improve low flow and high water temperature conditions along approximately 35.5 miles of the main stem of Cow Creek. The releases are expected to be most effective between the mouth of Applegate Creek and river-mile 59 on Cow Creek. Downstream from river-mile 59 the beneficial effects of the releases would steadily decrease. At river-mile 36.5, little or no benefit would be realized. The index of added fish habitat is 22,451 for this alternative.

Resident fish populations would not be adversely affected by this alternative. The reservoir pool would provide additional habitat for resident fish populations. Measures to mitigate and enhance the aquatic environment would be essentially the same as those described for the proposed plan.

The Applegate Creek proposal would not have an adverse effect on any threatened or endangered plant, fish, or wildlife species.

Recreation development at the reservoir would add appreciably to the present facility base of the county. The recreation plan would accommodate an average of 41,400 recreation-days of additional use annually. Similar to the Galesville proposal, the county would provide additional law enforcement in the area and a resident caretaker at the reservoir to lessen problems with traffic, vandalism, excessive noise, and trespass.

Two cultural resource sites are located in the impoundment area. They consist of the historic Hill cabin and a disturbed surface scatter of lithic material. The significance of both sites would be assessed prior to project construction. If warranted, a mitigation plan would be developed in consultation with the State Historic Preservation Officer. Potential mitigation could involve removal of the cabin to an area above the reservoir and complete excavation of the archeological site. Cultural resource protection measures during project construction would be the same as for the proposed plan.

Three residences involving five people are located in the impoundment area. All are renters who have lived in the area for less than 6 years. Families residing within the proposed acquisition line would be relocated as described under the Galesville proposal. This group would experience the same sort of "transitional anxiety" as the relocatees at the proposed project site, but because of their relatively short length of residence and lack of financial investment in the property, they would be expected to suffer less than most of the Galesville relocatees.

No significant impacts on school and health facilities, police and fire protection, transportation, and housing are expected due to the short-term influx of construction workers.

No Action Alternative

The consequences of this alternative would be continuation of an unreliable water supply in the service area. Municipal and industrial surface-water supplies have already reached the point where they are growth limiting in Glendale, Green, Tri-City, and Roberts Creek Water District. The South Umpqua Water Association will be water short by 2013. The remaining communities in the service area are projected to have sufficient quantities available through 2027 (Riddle, Myrtle Creek, and Winston-Dillard). Despite current and projected water shortages in the basin, the population is expected to grow in the absence of a project. As population grows, shortages would become more acute. The result will be earlier restriction of water uses and extended duration of the restriction in water-short communities. If future diversions for in-the-house use, gardens, and livestock watering are allowed to continue at the expense of the adopted minimum perennial streamflow, flows in the critical summer season will become lower.

Limited ground-water resources in the Cow Creek basin would be further depleted as demands for sources of water from this source increase. Domestic water supply demands can be expected to increase in proportion to population growth. Municipalities and industry are not likely to develop ground water to any extent because of typically low yields. Ground-water quality is not expected to change.

Changes in water quality and quantity would follow historic trends. The most significant water quality problems in Cow Creek and the South Umpqua River are temperature and flow related. Instream temperatures are expected to remain essentially the same because water temperatures are already very near air temperatures.

Periodic flood damages would continue to occur in the future much as they have in the past. Significant changes in the upper watershed which might influence flooding are not expected.

The inevitable conversion of agricultural lands to other uses (homesites, ranchettes, etc.) would result in decreased agricultural production. However, because of Oregon's land use laws, this conversion would occur very slowly.

Resident fish populations would decline over the years as flows in the stream are depleted and water temperatures rise. Species composition would continue to shift toward warm water tolerant aquatic life. Anadromous fish populations are expected to remain roughly the same since they are already limited by low flows and high temperatures in the summer.

Some degree of fisheries enhancement would occur through the county's existing riparian zone restoration program. However, due to the width of

Cow Creek, it would be many years before canopy closure could be sufficient to reduce water temperatures. Although the program is an important step in the restoration of fish habitat, it may never achieve the same degree of temperature benefit that releases from a deep reservoir would provide. Instream flows would not be increased by the program except for a minimal reduction in evaporation losses.

The demand for recreation areas will continue to increase as the population continues to grow in the county and region. The disparity between the supply and demand for recreation sites will probably continue to exist. New recreation areas may be developed on Bureau of Land Management or Forest Service land in southern Douglas County, but none are currently planned.

Economic growth in the service area would be hampered in the future with water supply shortages and restrictions. Without continued new employment opportunities, the demographic composition of the area would change. The quality of life in water-short communities would diminish as summer water use is more frequently curtailed.

Table 2.--Summary Comparison of the Impacts of Alternatives

Category	No Action	Galesville	Gold Mountain	Honeysuckle	Applegate Creek
Geology and topography	No impact	Site appears geologically suitable	Same as Galesville	Same as Galesville	Same as Galesville
Seismicity	No impact	No impact on dam up to design acceleration. Minimal risk of induced seismicity due to the reservoir.	Same as Galesville	Same as Galesville	Same as Galesville
Soils, erosion	No impact	Some soil erosion during construction. Possibility of small landslides into reservoir during operation.	Same as Galesville	Same as Galesville	Granitic soils are highly erodible. Reservoir sedimentation rates would be higher than for other alternatives.
Mineral and aggregate resources	No impact	C&D Lumber crushed rock quarry and Brady aggregate source would be purchased. Borrow areas would be within the pool.	Borrow areas would be both within and outside the pool.	The amount of fine-grained material available locally is insufficient for an earthfill dam. Rock would be quarried outside the pool.	Borrow areas for coarse material would be within the pool. Fine-grained material borrow areas would be outside the pool.
Climate	No impact	No impact	No impact	No impact	No impact
Air quality	No impact	Minor air quality reduction during construction and operation.	Same as Galesville	Same as Galesville	Same as Galesville
Surface water	Flows would diminish through increased diversion (when water is available) and depletion of ground water developed for domestic use.	Late summer flows would increase 10 times; winter flows would become moderate.	Late summer flows would increase 30 times; winter flows would become moderate.	Late summer flows would increase 10 times; winter flows would become moderate.	Late summer flows would increase 8 times; winter flows would become moderate.
	Temperature would increase slightly, due to lowered streamflow.	Temperature would be reduced by 1°-14° F in summer. Temperature reductions would persist on 60 miles of stream.	Temperature reductions at damsite would be similar to Galesville. Temperature reductions would persist on 40 miles of stream.	Temperature reductions at damsite would be similar to Galesville. Temperature reductions would persist on 29 miles of stream.	Temperature reductions at Cow Creek would be smaller than other alternatives due to warmer reservoir releases. Temperature reductions would persist on 35 miles of stream.
	Stream turbidity would remain unchanged--very high in winter, very low in summer. Normal erosion and deposition would occur.	Stream turbidity would be elevated in summer (but within water quality standards) and depressed in winter. Downstream erosion would accelerate due to sediment deposition behind dam. Movable intake structures in dam would help control turbid releases.	Same as Galesville. Multilevel intake structures in dam would help control turbid releases.	Same as Galesville. Multilevel intake structures in dam would help control turbid releases.	Same as Galesville, except watershed would yield higher sediment load per square mile and a multilevel intake would be less effective due to shallow pool.

Table 2.--Continued

Category	No Action	Galesville	Gold Mountain	Honeysuckle	Applegate Creek
Suface water (continued)	Dissolved oxygen would decrease.	Dissolved oxygen would increase.	Same as Galesville	Dissolved oxygen in stream would be slightly higher than Galesville.	Dissolved oxygen in stream would be lower than Galesville.
		21,000 acre-foot flood control storage capacity. Flood control benefit for Glendale, Azalea Riddle, Tri-City, Myrtle Creek, Dillard, Winston, and Roseburg.	21,000 acre-foot flood control storage capacity. Flood control benefit for Riddle, Tri-City, Myrtle Creek, Dillard, Winston, and Roseburg.	Same as Gold Mountain	Flood control benefit would be very small.
Ground water	Ground-water supplies would diminish due to development as a domestic water source.	Ground-water table in vicinity of reservoir will be higher.	Same as Galesville	Same as Galesville	Same as Galesville except areal extent would be much smaller.
Public water supply	Rationing would become more frequent and last longer. Adopted minimum streamflows would be depressed more often.	Assured adequate domestic, municipal, industrial, and irrigation water supply for Glendale, Riddle, and reaches 4 and 5.	Assured adequate domestic, municipal, industrial, and irrigation water supply for Riddle and reaches 4 and 5.	Same as Gold Mountain	Assured adequate domestic, municipal, industrial, and supplemental irrigation water supply for Glendale, Riddle, and reaches 4 and 5.
Vegetation, timber, and agriculture	No impact	Inundation of approximately 640 acres including 330 acres of Douglas-fir forest, 295 acres of agricultural land, and 15 acres of riparian habitat. Additional loss of 35 acres, mostly forested for road relocation.	Inundation of approximately 530 acres including 490 acres of Douglas-fir forest and 40 acres of riparian habitat. Additional loss of 145 acres of forest for road relocation and transmission line corridor. Temporary disturbance of 145 acres for construction right-of-way.	Inundation of approximately 400 acres including 370 acres of Douglas-fir forest and 30 acres of riparian habitat. Loss of 240 acres of forest for transmission line corridor. Temporary disturbance of 80 acres for construction right-of-way.	Inundation of approximately 170 acres including 135 acres of Douglas-fir forest and 35 acres of farmland, including riparian habitat. Additional loss of 10 acres for access roads.
		295 acres of agricultural lands flooded; 7,222 acres could benefit by increased water supply and guaranteed delivery.	No farmland flooded; potential benefit by guaranteed water supply for irrigation of 4,700 acres.	No farmland flooded; potential benefit by guaranteed water supply for irrigation of 4,700 acres.	35 acres of farmland flooded; no additional agricultural lands to be irrigated; 1,000 acres would receive supplemental supply.
Wildlife	No impact	No impact on sport harvest of deer. Animal populations would decline due to loss of habitat; displacement of animals due to increased human disturbance.	Small positive impacts through increased access for the sport harvest of deer; no net effect on deer populations. Animal populations would decline due to loss of habitat; displacement of animals due to increased human disturbance.	No impact on sport harvest of deer. Animal populations would decline due to loss of habitat; displacement of animals due to loss of habitat; displacement of animals due to increased human disturbance.	Potential negative impact on sport harvest of deer. Animal populations would decline due to loss of habitat; displacement of animals due to increased human disturbance.

Table 2.--Continued

Category	No Action	Galesville	Gold Mountain	Honeysuckle	Applegate Creek
Wildlife (continued)		Potential enhancement of migratory game bird population for sport harvest.	Migratory game bird enhancement same as Galesville.	Migratory game bird enhancement same as Galesville.	Migratory game bird enhancement potentially as great as other alternatives.
Fish	No change in existing poor fisheries conditions.	Fish passage not required. Adult coho salmon will be trapped and transported to hatchery. 28.75 miles blocked.	Fish passage not required. Adult migratory fish will be trapped and transported to hatchery. 7.6 miles blocked.	Fish passage required. 0 miles blocked.	Fish passage not required. 6 miles blocked.
		No net loss of resident trout habitat. The amount of trout habitat rehabilitated by proposed reservoir releases and the amount of trout habitat available in the reservoir will equal or exceed the amount of habitat lost due to the construction of the reservoir.	No net loss of resident trout habitat (same reasoning as Galesville).	No net loss of resident trout habitat (same reasoning as Galesville).	No net loss of resident trout habitat (same reasoning as Galesville).
		No net loss of anadromous fish habitat. Habitat rehabilitated due to reservoir releases will exceed the amount of anadromous fish habitat lost due to the construction of the reservoir.	No net loss of anadromous fish habitat anticipated (same reasoning as Galesville).	No net loss of anadromous fish habitat anticipated (same reasoning as Galesville plus fish passage over the dam would be provided).	No net loss of anadromous fish habitiat anticipated (same reasoning as Galesville).
		60 miles of fish habitat improved.	40 miles of fish habitat improved.	29 miles of fish habitat improved.	35 miles of fish habitat improved.
		Index of added fish habitat = 143,728.	Index of added fish habitat = 70,470.	Index of added fish habitat = 62,380.	Index of added fish habitat = 22,451.
Endangered species	No impact	No impact	No impact	No impact	No impact
Noise	No impact	Increased noise levels for local residents during construction. Small impact during operation.	Same as Galesville except there are no nearby residences.	Same as Galesville except there are no nearby residences.	Same as Galesville except there are no nearby residences.
Scenic quality	No impact	Moderate impact relative to other alternatives; general impact on the character of the landscape.	Greater alteration than Galesville and Applegate Creek of the natural esthetic qualities of the area with regard to water, vegetation, and land form.	Essentially the same as Gold Mountain.	Less impact than other alternatives, due to smaller extent and location; general impact on the character of the landscape.

Table 2.--Continued

Category	No Action	Galesville	Gold Mountain	Honeysuckle	Applegate Creek
Scenic quality (continued)		Slightly more impact on the "essential character" of the landscape than Applegate due to extent of the dam and pool.	Less impact than other alternatives, based on remote location of the area.	Slightly greater impact on dominant qualities common to the landscape than other alternatives.	General impact on the "essential character" of the landscape.
		VRM classification might change from III to II, affecting BLM timber management on 3,000 acres.	VRM classification might change from IV to II, affecting BLM timber management on 3,400 acres.	VRM classification might change from III to II, affecting BLM timber management on 6,300 acres.	Forest Service might manage timber differently in the view shed
Land use	Existing development patterns would change to more dispersed settlement. Cities would grow up to limits of water availability. Building moratoria imposed in cities would stimulate conversion of rural areas to homesites.	Existing development pattern would continue, encouraging growth in cities and discouraging conversion of ag and timberlands to homesites. About 675 acres would be converted from farm and forest uses to reservoir, road, and related facilities.	Existing development pattern would continue, encouraging growth in cities and discouraging conversion of ag and timberlands to homesites. About 675 acres would be converted from forest uses to reservoir, road, and related facilities.	Existing development pattern would continue, encouraging growth in cities and discouraging conversion of ag and timberlands to homesites. About 640 acres would be converted from forest uses to reservoir, road, and related facilities.	Existing development pattern would continue, encouraging growth in cities and discouraging conversion of ag and timberlands to homesites. About 180 acres would be converted from farm and forest uses to reservoir, road, and related facilities.
Social impacts	Requires no relocation.	Requires relocation of 8 households, including 20 people.	Requires no relocation.	Requires no relocation.	Requires relocation of three residences, including five people.
	Water shortages would lower quality of life.	Construction of dam, influx of construction workers and recreationists, and relocation of neighbors would reduce quality of life of remaining Cow Creek residents with regard to traffic and community cohesion.	No community exists in the vicinity.	No community exists in the vicinity.	Short-term traffic impacts would be similar to Galesville but much less severe. No impact on community cohesion.
		Reliable water supplies would enhance the quality of life in reaches 1, 2, 4, and 5.	Reliable water supplies would enhance the quality of life in reaches 2, 4, and 5.	Same as Gold Mountain	Same as Galesville except no new lands would be irrigated.
Population and demographics	Service area population in 2027 would be limited to 35,660 due to water shortages.	2027 population of 48,670 would not be water-limited.	Service area population in 2027 would be limited to 47,520 due to water shortages in Glendale.	Same as Gold Mountain	Same as Galesville

Table 2.--Continued

Category	No Action	Galesville	Gold Mountain	Honeysuckle	Applegate Creek
Population and demographics (continued)	Young jobseekers would continue the current out-migration. Demographics would change accordingly.	New economic opportunities would help keep young jobseekers in the area. Demographics would not change.	Same as Galesville except economic growth of Glendale would be limited.	Same as Gold Mountain	Same as Galesville
Employment	No impact	Direct employment of up to 162 workers.	Direct employment of up to 220 workers.	Direct employment of up to 374 workers.	Direct employment of up to 80 workers.
Housing	No impact	No impact	No impact	No impact	No impact
Transportation	No impact	Requires relocation of Cow Creek Road. Increased traffic on Cow Creek Road.	Requires relocation of West Fork Road. Increased traffic on West Fork Road.	Relocation of West Fork Road and Trail Creek Road. Increased traffic on West Fork Road.	Relocation of Applegate Creek Road. Increased traffic on Cow Creek Road and Applegate Creek Road.
Energy	No impact	1.8-megawatt hydroelectric facility. 6,045.7 megawatt-hours per year	1.8-megawatt hydroelectric facility. 7,238 megawatt-hours per year	7.5-megawatt hydroelectric facility. 27,948 megawatt-hours per year	No power generation
Health facilities	No impact	No impact	No impact	No impact	No impact
Police protection	No impact	Hire one additional police officer	Same as Galesville	Same as Galesville	Same as Galesville
Fire protection	No impact	Forest fire danger increased due to recreationists.	Same as Galesville	Same as Galesville	Same as Galesville
Schools	No impact	Annual loss of $6,100 in property taxes generated to Glendale School District No. 77.	Annual loss of $280 in property tax revenue to Camas Valley School District No. 21.	Annual loss of $150 in property tax revenue to Glendale School District No. 77.	Annual loss of $315 in property tax revenue to Glendale School District No. 77.
Recreation	No impact	Positive impact, enhancement of the region through development of a boat ramp and day-use areas at the reservoir. Use would average 45,000 recreation-days annually.	Positive impact, enhancement of the region through development of a boat ramp and day-use areas. Use would average 33,750 recreation-days annually.	Limited recreation development potential and impact due to steep topography. Use would average 45,000 recreation-days annually.	Positive impact, enhancement of the region through development of a recreation area and boat launch. Use would average 41,400 recreation-days annually.
Archeological and historical resources	No impact	Impact on a potential archeological site and a potentially historic barn due to inundation (site significance has not been determined).	No impact anticipated	No impact anticipated	Impact on historic Hill cabin due to inundation (significance has not been determined) Impact on a potential archeological site due to inundation (site significance undetermined).

Table 2.--Continued

Category	No Action	Galesville	Gold Mountain	Honeysuckle	Applegate Creek
Economics	Economic growth will suffer in water-short communities	Total project cost of $35 million could be funded in part by $26 million Bureau of Reclamation loan and grant. Estimated equivalent annual benefit1/ for commercial agriculture irrigation is $443,600, for municipal and industrial use is $312,300, and for power is $343,800 over the life of the project. An annual loss of $770 in O&C2/ revenue to the county is anticipated in the area inundated.	Total project cost of $40.9 million could be funded in part by $26 million Bureau of Reclamation loan and grant if the maximum eligible project cost is raised above the calendar year 1982 limit of $39 million. Estimated equivalent annual benefit1/ for commercial agriculture irrigation is $289,200, for municipal and industrial use is $274,500, and for power is $620,000 over the life of the project. The county would suffer an annual loss of $417 in O&C2/ revenues for the area of inundation.	Total project cost of $116 million prohibited further economic analysis of this site as total cost exceeded Bureau of Reclamation funding.	Total project cost of $10.2 million could be funded in part by Bureau of Reclamation funds. Estimated equivalent annual benefit1/ for commercial agriculture irrigation is $39,500 and for municipal and industrial use is $117,100.

1/ *Computed at 7-5/8 percent interest*

2/ *Oregon and California Railroad (O&C) grant lands revested to the United States and administered by the Bureau of Land Management. Under Federal law, counties receive a percentage of revenues generated from these lands through timber sales or other activities.*

CHANGES AND ERRATA

CHANGES AND ERRATA

INTRODUCTION

This chapter of the final environmental statement (FES) documents changes and modifications which have been made as a result of the comments received on the draft environmental statement (DES). The changes are incorporated such that they can be referred back to the DES by page number, paragraph number, and in some cases sentence number. Where no changes are made, the information contained in the DES remains valid and continues to represent the findings of the Bureau of Reclamation.

The September 1982 Loan Application Report and the March 1983 DES on the Galesville Project both evaluated the construction of a zoned earthfill structure at the Galesville site. However, based on additional geotechnical and cost data collected since the DES was prepared, a roller-compacted concrete design has been tentatively selected in lieu of the earthfill alternative. Thus, this chapter also describes the changes in environmental effect expected due to providing a roller-compacted concrete structure at Galesville. It should be noted that the information contained in the DES on the earthfill design remains valid. Although unlikely, the county could decide at a later date in favor of the earthfill alternative.

Other project features which have been modified since the DES was prepared involve the location of the spillway, the deletion of anadromous fish release facilities, and the replacement of a fixed multiple-level intake with two movable intakes and a fixed low level intake for the dam's outlet works. The location of anadromous fish capture facilities would remain unchanged; these facilities would be constructed below the proposed powerhouse to trap adult coho salmon.

The above changes will result in minor changes in environmental impact. However, the net environmental effect is expected to be positive (these changes are described in greater detail below). None of the other project features described in the DES have been modified.

Thus, the proposed project would consist of a 42,225-acre-foot reservoir covering approximately 640 acres; a 150+-foot-high roller-compacted concrete dam; a service spillway located across the center of the dam; an outlet works which includes two movable intakes and a fixed low level intake; fish capture facilities; and the necessary road, utility, and household relocations. Power generation facilities would also be included in the project. These would consist of two 900-kilowatt units (that would generate an estimated 6,045,700 kilowatt-hours of electricity per year) and a switchyard. Recreation facilities would also be provided. A detailed drawing of the proposed Galesville Project is included on figure 4.

CONSTRUCT A ROLLER-COMPACTED CONCRETE DAM AT THE GALESVILLE SITE

The earthfill alternative evaluated in the DES would require the construction of a concrete-lined spillway across the dam's left abutment. In comparison, the proposed roller-compacted concrete design would allow a service spillway to be placed across the center of the dam. Because of this location, the spillway would have a larger capacity than that of the earthfill alternative (more than one-third greater). The larger spillway capacity would reduce the reservoir surcharge storage requirement needed to pass the probable maximum flood. This reduction in the surcharge storage requirement results in a reduction in the dam height required above the normal reservoir water surface. The maximum height of the proposed dam would be about 150 feet (about 8 feet lower than the earthfill design).

The reduction in the maximum probable water surface will result in a reduction in project right-of-way requirements since the amount of land around the reservoir subject to flooding would be reduced. Two fewer households would be affected by the project (as compared to the earthfill alternative) because of the reduced right-of-way requirements. One residence would no longer be within the road relocation right-of-way, and the other would no longer be within the reservoir right-of-way. The relocation of households remains one of the most significant adverse effects of the proposed project. Thus, any reduction in relocation requirements would reduce the net environmental effect of the project.

The construction of a roller-compacted concrete dam would require a shorter construction period than the earthfill alternative. Thus, the environmental effects related to project construction, although essentially the same as those associated with the earthfill alternative, would occur over a shorter time period. The mitigation measures described in the DES to offset adverse project construction and operation effects remain valid.

FISH FACILITIES

The proposed plan includes the construction of anadromous fish capture facilities on Cow Creek below the damsite. A preliminary facility design (size, location, capacity, etc.) has been developed. Final layout and design will be defined during the dam's final design stage in cooperation with the Oregon Department of Fish and Wildlife and the National Marine Fisheries Service. Specifically, the proposed fish plan includes the following features.

A low concrete weir topped with flow-deflecting louvers would be constructed across the creek downstream of the turbine outlets. This would still waters exiting the turbines and direct fish migrating upstream toward the fish trap.

The brood fish collection facility would be a 10- by 30- by 5-foot deep concrete pond intended to trap coho salmon bound for spawning grounds above the damsite. A short, steep pass or concrete bay-type ladder would be constructed from the creek to the pond. Sufficient water would be routed through the fish capture facility to insure its proper functioning.

Adult coho trapped at the dam would be trucked to the Rock Creek Fish Hatchery near Glide, Oregon, for spawning. A combination starting-rearing pond approximately 20- by 100- by 5-foot deep would be added to the hatchery. Coho juveniles raised at the hatchery would be transported and released throughout the Cow Creek subbasin in tributary streams located below the damsite.

The main difference between this fish mitigation/enhancement plan and that described in the DES is that a fish acclimation/release facility has been determined unnecessary by the Oregon Department of Fish and Wildlife. Thus, its construction has been deleted from the plan. In addition, instead of transporting coho juveniles raised at the hatchery back to the damsite for acclimization and release into Cow Creek, the juveniles would be transported and released throughout the Cow Creek subbasin in tributary streams located below the damsite. The anadromous fish benefits realized, however, would be the same as those described in the DES.

During the operational phase of the project if the Oregon Department of Fish and Wildlife determines that the return of hatchery fish to Cow Creek is poor, Douglas County would fund the construction of a fish acclimation/release facility in the Cow Creek subbasin under the direction of the Oregon Department of Fish and Wildlife.

The fish plan for the Gold Mountain alternative would be essentially the same as for the Galesville Project. Fish capture facilities would be constructed but, for the reasons stated above, the fish acclimation/release facility has been deleted from the alternative. Steelhead trout rather than coho salmon would be utilized in the program.

INTAKE STRUCTURE FOR OUTLET WORKS

The proposed plan described in the DES included a fixed multiple-level intake for the dam's outlet works. This has since been replaced with two movable intakes and a fixed low-level intake for the outlet works. Either intake design would permit the selection of discharge water from various levels in the reservoir to control potential water quality impacts (turbidity, temperature, and dissolved oxygen) in Cow Creek below the dam. However, the proposed movable intakes, singly or in combination, would allow more precise selection of the water discharged from the reservoir because they can draw water from any depth within the normal operating range of the reservoir. The multiple-level intake structure previously proposed would be less flexible in the selection of discharge water because the intakes are fixed at a particular depth in the reservoir.

OTHER CHANGES AND ERRATA

Summary

DES page 8, paragraph 2, second sentence. Delete the following: ". . . and the telephone and electric lines that parrallel it."

Purpose and Need

DES page 1-16, table 1-7. Change the word "permit" to "license" under Federal Energy Regulatory Commission requirement heading.

DES page 1-19, table 1-7. Add the following:

Agency	Act of Regulation	Requirement	Procedure for Compliance
Division of State Lands	ORS 541.605	Land fill and removal permits	Submit application for approval

DES page 1-24. Insert the following paragraphs after paragraph 2 under "Douglas County Comprehensive Plan":

"The Douglas County Board of Commissioners affirmed this decision on August 23, 1982. The Board of Commissioners' decision was appealed to the Oregon Land Use Board of Appeals (LUBA). On March 17, 1983, LUBA issued a decision which "remanded, in part" the Board of Commissioners' decision. However, LUBA's decision to remand was based on procedural grounds, not on a conclusion that the Board of Commissioners' decision violated any portion of the Douglas County Comprehensive Plan. This LUBA decision has been appealed to the Oregon Court of Appeals.

Furthermore, on October 6, 1982, the county adopted extensive comprehensive plan and zoning map amendments, including amendments to designate and zone the Galesville site for water impoundment use. The Douglas County Comprehensive Plan, including these amendments and an exception from Statewide Planning Goals 3 (Agricultural Lands) and 4 (Forest Lands) for the Galesville site, was acknowledged by the Oregon Land Conservation and Development Commission (LCDC) to be in compliance with the statewide planning goals on January 18, 1983. This LCDC order has also been appealed to the Oregon Court of Appeals. Under Oregon law, all land use decisions must comply with the statewide planning goals or an acknowledged comprehensive plan.

Thus, at the present time, both Douglas County and LCDC have found the proposed Galesville Project to be in compliance with the Douglas County Comprehensive Plan and Statewide Planning Goals, respectively. However, both these decisions are being appealed through the Oregon courts."

Alternatives Including Proposed Project

DES page 2-11, "Fish Facilities", paragraph 1. Replace with following: "Anadromous fish capture facilities would be constructed on Cow Creek below the damsite. A preliminary facility design (size, location, capacity, etc.) has been developed. Final layout and design will be defined during the dam's final design stage in cooperation with the Oregon Department of Fish and Wildlife and the National Marine Fisheries Service."

DES page 3-GV-13. Insert the following after paragraph 4:

"(3) Federal Energy Regulatory Commission Safety Inspection

The Federal Energy Regulatory Commission (FERC) inspects licensed projects, both during and after construction, to insure their physical safety and the safety of the public, including recreational users, and to insure that the licensee complies with any special construction and operating requirements of the license. Projects under construction are usually inspected at least once a month. The inspecting engineer reviews construction and testing procedures and notes progress and quality of construction in accordance with the design drawings approved by the Commission. Additional inspections are made during critical construction stages, such as foundation and cutoff trench excavations, abutment treatment, diversion and closure, and initial filling of the reservoir.

After the project is placed in operation, it is inspected by FERC, normally once a year. During these annual inspections, staff engineers review the overall development from a safety standpoint and also assess whether the licensee is operating and maintaining the facilities in accordance with the license provisions. Licensees are required to notify the Commission promptly of any conditions that could jeopardize the safety of the project, and special inspections are made to assess such problems. Additional staff inspections are also made following natural disasters such as floods, landslides, or earthquakes.

Part 12 of the Commission's regulations requires periodic safety inspections of licensed dams by qualified independent consultants at regular 5-year intervals. This requirement applies to those hydroelectric projects having a dam exceeding 35 feet in height above streambed or a gross reservoir storage capacity of 2,000 acre-feet. The inspections are performed by, or under the responsibility and direction of, qualified independent consultants employed by the licensee. The basic purpose of the consultant's inspection is to determine whether there are deficiences or potential deficiences in the design, quality and adequacy of maintenance, or methods of operation of the project structures that might endanger public safety."

DES page 3-GV-36, paragraph 3. Insert the following sentence between the first and second sentences: "Some reduction of gravel recruitment to downstream areas would occur because of deposition in the reservoir."

DES page 3-GV-49, paragraph 3. Replace with following: "Users who hold rights predating the establishment of minimum flows in 1958 cannot legally be restricted because of minimum flows. Three hundred and two, or 64 percent of the rights in the service area, fall into this category."

DES page 3-GV-51, paragraph 5. Replace with following: "In those years when inflow is insufficient to meet all the needs, water would be supplied on the priority basis established by Oregon water law. Under this system, holders of the most recent water rights have their withdrawals curtailed first. Water withdrawals are curtailed by the watermaster to preserve the adopted minimum streamflows for protection of fish and wildlife and to deliver water to senior right holders downstream when their supply is less than the amount to which their right entitles them."

DES page 3-GV-56, paragraph 6. Replace with following: "Most wetland areas in the project area are small discontinuous patches currently affected by human and livestock activity. This has lessened their value as wildlife habitat."

DES page 3-GV-86, "Mitigation of Cultural Resource Impacts," paragraph 2. Replace with following: "If cultural resources are found during project construction, work in the immediate area would be halted and the State Historic Preservation Officer contacted. The procedures of the Advisory Council on Historic Preservation (36 CFR 800) would be followed. The find would be evaluated for National Register significance and, if necessary, mitigating measures would be completed."

DES page 3-GV-93, "Community Organizations and Institutions," paragraph 1. Replace with following: "There are a number of local community organizations and institutions that play an important role in the community social structure. The Upper Cow Creek Community Center, located in the middle of the community about 14 miles from the freeway, was renovated by local volunteers with donated materials and CETA grant funds. This facility serves as a gathering place for volleyball, potlucks, talent shows, movies, and music and drama club activities. It is managed by a seven-member volunteer board of directors, and its activities involved 43 local families during 1981."

DES page 3-GV-121, table 3-GV-35, "Summary of Project Costs." Footnote added as follows:

Direct Costs	$19,542,000 1/

1/ The estimated direct cost of project facilities includes $2,095,000 for the powerplant and transmission facilities.

APPENDIX A - CONSULTATION AND COORDINATION

CONSULTATION AND COORDINATION

Distribution and Review of the Draft Environmental Statement

The draft environmental statement on the Galesville Project proposal was filed with the Environmental Protection Agency on March 8, 1983, and the "Notice of Availability" was published in the Federal Register on March 11, 1983. Copies of the DES and Executive Summary were then sent to 136 Federal and State agencies, organizations, and individuals for review as required by law and procedures approved by the President. In addition, 124 copies of the DES Executive Summary only were sent to interested organizations, individuals, and media for information and review. An addressed request form for the DES was provided in the Executive Summary for those who wished to review the entire statement. Requests for the DES were received from 26 individuals. In all, the documents were distributed to about 286 agencies, organizations, and individuals (see distribution list).

The comment period ended on May 7, 1983. A total of 31 comment letters were received. All letters of comment received as a result of the review are presented in the "Comments and Responses" section of this report (see Appendix C), along with required responses by the Bureau of Reclamation. No changes are required in the project proposal as a result of that review.

Public Hearing

The Bureau of Reclamation held a public hearing on April 28, 1983, in Roseburg, Oregon, to receive oral and written comments on the adequacy of the Galesville Project DES. The public hearing was advertised in the Federal Register, in local newspapers, by radio, and in personal letters sent to recipients of the DES and/or Executive Summary. Approximately 45 persons attended the hearing; of those, 14 presented testimony.

Reclamation and Douglas County personnel were on hand to informally answer questions and provide information on the plan to those who requested it. At the close of the public hearing, a question and answer period was held to aid the public in reviewing the DES and understanding the program.

A summary of the oral testimony received at the public hearing is presented in the "Comments and Responses" section of this report (see Appendix C), along with required responses by the Bureau of Reclamation.

APPENDIX B - DISTRIBUTION LIST

DISTRIBUTION LIST

The final environmental statement is being distributed to Federal, State, and local agencies, local libraries, and to individuals and organizations that commented on the draft environmental statement either orally or in writing.

United States Senate

Mark O. Hatfield
Bob Packwood

United States House of Representatives

Les AuCoin
Denny Smith
Bob Smith
James H. Weaver
Ron Wyden

United States Department of the Interior

Bureau of Indian Affairs
Bureau of Land Management
Bureau of Mines
U.S. Fish and Wildlife Service
Geological Survey
National Park Service
Western Regional Office--Secretary of the Interior

Other Federal Agencies

Advisory Council on Historic Preservation
Council on Environmental Quality
Environmental Protection Agency
Department of Agriculture--Forest Service
Soil Conservation Service
Department of the Army--Corps of Engineers
Department of Commerce--National Marine Fisheries Service
National Ocean Service
Department of Energy--Bonneville Power Administration
Department of Health and Human Services--Public Health Service
Department of Housing and Urban Development
Department of Transportation--Federal Highway Administration
Federal Energy Regulatory Commission

State and Local Agencies

State

Governor Victor B. Atiyeh
Assistant to the Governor for Natural Resources
Department of Agriculture

State and Local Agencies

State

Department of Energy
Department of Environmental Quality
Department of Fish and Wildlife
Department of Forestry
Department of Geology and Mineral Industries
Department of Human Resources
Department of Land Conservation and Development
Department of Water Resources
District 15 Watermaster
Division of Intergovernmental Relations
Division of State Lands
State Highway Engineer
State Historic Preservation Office

County

Coos County Commissioners
Douglas County Commissioners
Douglas County Counsel
Douglas County Parks Department
Douglas County Planning Department
Douglas County Public Works Department
Douglas County Water Resources Survey
Umpqua Regional Council of Governments

City

Mayor of Riddle
Mayor of Roseburg
Mayor of Canyonville
Mayor of Glendale
Mayor of Myrtle Creek
Mayor of Winston

Organizations and Individuals

Cow Creek Dam Inquirers
Douglas County Water Resources Advisory Board
Roseburg Area Chamber of Commerce
South Douglas Soil and Water Conservation District
Southern Oregon Resource Alliance, Umpqua Chapter
Umpqua Basin Water Association
Umpqua Valley Audobon Society
Umpqua Water Resources Development Association
Gerald and Mary Lee Brady
James and Mary Cookman
Richard Derrig
Frank Elst

Organizations and Individuals

- Allen L. Johnson
- Esther Koch
- Florence and Joe Lapp
- Winifred Maker
- Sonia and Bob Phillips
- Gaston Porterie
- Carol and Robert Sanders
- Wesley N. Smith
- Georgia Stiles
- Donald E. Wight

Libraries

- Douglas County Library
- Oakland Public Library
- Sutherlin Library
- Umpqua Community College Library
- Winston Library

APPENDIX C - COMMENTS AND RESPONSES

COMMENTS AND RESPONSES

This section summarizes the testimony received at the public hearing and presents all letters received as a result of the review of the March 1983 draft environmental statement. The Bureau of Reclamation's responses to specific comments on the DES are provided as required.

Hearing Testimony

A public hearing was held on April 28, 1983, in Roseburg, Oregon.

A record of the hearing session was made available in June 1983 at the Douglas County Courthouse in Roseburg; at libraries in the general area; and at Reclamation's Pacific Northwest regional office in Boise, Idaho.

About 45 people attended the public hearing in addition to Reclamation and Douglas County personnel. Fourteen people presented testimony during the formal hearing session. Of those, five also submitted written comments.

The first speaker, a member of the Cow Creek Dam Inquirers and a property owner at the upper end of the proposed reservoir, (1) stated that the road to the Applegate site is graveled not paved, (2) stated that there is no phone or electric service to the Applegate site, (3) stated that C&D Lumber does not own mineral rights to land at the Galesville site, and (4) questioned whether sufficient borrow material would be available to build a 45,000-acre-foot reservoir at the Gold Mountain site. Specific comments were also made on reports other than the DES.

Bureau of Reclamation Response:

(1) DES page 3-AC-28 "Existing Transportation Conditions," paragraph 1, states that the Applegate Creek Road is a graveled Forest Service road.

(2) The DES has been revised accordingly (see FES page 37).

(3) See page 3-CV-6 of the DES. The State Department of Geology and Mineral Industries and the Division of State Lands are responsible for issuing permits for mining activities. There is only one site near the Galesville reservoir area for which a permit has been issued—a rock quarry owned by C&D Lumber Company. There is no mention in the DES of mineral right ownerships.

(4) According to an International Engineering Company geologist, sufficient borrow material would be available to build a 45,000-acre-foot reservoir at the Gold Mountain site.

The second speaker, a member of the Cow Creek Dam Inquirers and a property owner within the proposed impoundment area, (1) felt that the county has not negotiated on property at the earliest possible opportunity and in good faith, (2) questioned the criteria used to develop irrigation benefits attributed to the project, (3) had a different opinion on flood control benefits than that stated in the DES, (4) questioned whether an adequate geotechnical investigation had been done at the Galesville site, and (5) believed turbidity effects of the project would be adverse.

Bureau of Reclamation Response:

(1) Douglas County has proceeded with the relocation of households and property acquisition as expeditiously as legally possible under applicable State and Federal law.

(2) The irrigation benefit evaluation was conducted in accordance with established Bureau of Reclamation criteria and procedures developed for the Small Reclamation Projects Act loan program (Public Law 84-984).

(3) Comment noted

(4) Questions regarding the geologic adequacy of the Galesville site are addressed in Reclamation's response to a letter dated May 7, 1983, from Allen Johnson (see FES page C-75, item 3-GV-10).

(5) Turbidity is not expected to be a problem. However, Douglas County will monitor water quality discharges and provide the Oregon Department of Fish and Wildlife (ODFW) all data on a regular basis. Operations will be modified in accordance with ODFW's recommendations. This has been included in the "Environmental Commitments" section of the FES (see Appendix D).

The third speaker, a resident of Douglas County, questioned whether Douglas County can legally enter into a repayment contract with the United States Government to fund the Galesville Project.

Bureau of Reclamation Response:

Legal opinions provided by Douglas County counsel indicate that the county can enter into a loan repayment contract with the Federal Government using the funding approach proposed for this project. These opinions demonstrate that this action is legal under the Oregon State Constitution as interpreted by Oregon courts.

The fourth speaker, a member of the Cow Creek Dam Inquirers and a property owner within the proposed impoundment area, (1) believed authorities are ignoring cultural resources located within the impoundment area; (2) disputed statements made in the DES regarding landslides, seismicity, faulting, and the overall geologic stability of the impoundment area and presented a 1-year record of recent ground movements recorded by an impoundment area resident; and (3) disagreed with the statement that no prime or unique farmlands occur within the impoundment area.

Bureau of Reclamation Response:

(1) See pages 3-GV-83 through 3-GV-86 and Environmental Commitments section of the DES. Potential cultural resource sites will be evaluated by the applicant's consultant in the summer of 1983 to determine whether they meet National Register criteria--specifically, the potentially historic barn and lithic scatter found on the Brady property will be evaluated, and the potential burial of an early settler named MacElroy will be researched. If National Register criteria are met, a mitigation plan will be prepared in consultation with the State Historic Preservation Officer, Bureau of Reclamation, and representatives of the Cow Creek Band of Umpqua Indians.

(2) Questions regarding the geologic adequacy of the Galesville site are addressed in Reclamation's response to a letter dated May 7, 1983, from Allen Johnson (see FES page C-75, item 3-GV-10).

A geologist for the International Engineering Company in a letter dated March 30, 1983, to the Douglas County Water Resources Coordinator wrote that in his opinion ground movements recorded at an impoundment area residence are probably related to the foundation conditions of the house and are not earthquake related nor related to any adjustment that might be occurring at a landslide located approximately 2,600 feet to the east of the residence. The letter also indicated that increased soil moisture content in the spring of the year may cause shifting of the foundation, particularly if the soils are expansive, thus swelling during the wet season and shrinking during the dry season.

(3) The U.S. Department of Agriculture, Soil Conservation Service was consulted and its criteria used to determine whether certain lands within the impoundment area qualify as "prime" or "unique" farmland. Based on an application of the criteria, the determination was made that no prime or unique farmlands occur within the impoundment area.

The fifth speaker, vice chairman of the South Douglas Soil and Water Conservation District and Regional Director for the Oregon Farm Bureau Federation, expressed support for the Galesville Project.

The sixth speaker, Chair of the Water Resources Committee of Southern Oregon Resource Alliance, Umpqua Chapter, expressed support for the county's proposed action at the Galesville site.

The seventh speaker, a resident of Douglas County above the Galesville area, (1) expressed sympathy for the people who would be displaced by the dam but felt that this would be small compared to the numbers who would benefit from the project, (2) pointed out that the community school mentioned on page 3-GV-93 of the DES is no longer in existence, and (3) stated support for the Galesville site because it is the best available to the county.

Bureau of Reclamation Response:

(2) Correction made (see FES page 40)

The eighth speaker, watermaster of District 15 (Douglas, Coos, and Curry Counties), (1) commented on inaccuracies in the DES on pages 3-GV-49 and 3-GV-51 concerning water rights, minimum flow regulation, and minimum streamflows for protection of fish and wildlife and municipal use and (2) felt the DES otherwise adequately covered the existing and future water needs in the area.

Bureau of Reclamation Response:

(1) Corrections made (see FES pages 39 and 40)

The ninth speaker, Manager of the Roseburg Chamber of Commerce, iterated the Chamber's continued support of the Galesville Project since its inception because it would supply all the necessary ingredients of a water impoundment project; i.e., water for irrigation and industrial use, flood control, recreation, tourism, and water for firefighting in the southern part of the county.

The tenth speaker, a Douglas County resident, (1) objected to the expenditure of funds for a water impoundment the size of Galesville but expressed support for smaller impoundments and (2) urged the Bureau of Reclamation to consider funding smaller dams in lieu of larger installations.

Bureau of Reclamation Response:

The Bureau neither proposes projects nor initiates loan applications under the Small Reclamation Projects Act. The loans must be applied for by eligible entities as specified in the act, and the proposed projects must meet certain criteria in order to qualify for a loan. The Bureau considers all applications it receives which meet the established criteria.

The eleventh speaker, representing the Oregon Department of Fish and Wildlife, stated the Department's view that the DES presents an adequate assessment of the environmental impacts on fish and wildlife.

The twelfth speaker, Chairman of the Douglas County Resources Advisory Board, stated that members of the Board had reviewed the DES and found it to be adequate and accurate.

The thirteenth speaker, a board member and former chairman of the Umpqua Watershed Resources Development Association, expressed unequivocal support for the Galesville Project and concurred with the content of the DES.

The last speaker, a member of the Cow Creek Dam Inquirers and property owner at the upper end of the proposed reservoir, (1) disagreed with the flood control benefits for various towns, (2) disagreed with a consultant's conclusion on flood control--"The relatively high degree of flood protection provided would reduce or eliminate the current risk of flood plain occupancy.",

(3) expressed support for a small dam at the Applegate site to serve Cow Creek and suggested that Canyonville build its own dam, (4) stated that the social and economic impact of the county's zoning the area as a water impoundment site was not covered in the DES, and (5) felt that the county had selected the easiest site but not the best one.

Bureau of Reclamation Response:

(1) Flood control benefits were calculated on the basis of Corps of Engineers criteria as discussed in the November 1981 Robert E. Meyer Consultants report.

(2) We agree. The Galesville Project would reduce but not eliminate the current risk of flood-plain occupancy.

(4) In order to construct a water impoundment at the Galesville site, a land use zoning change was needed. Prior to the zone change, some Galesville water impoundment lands were zoned within the 100-year flood plain. Water impoundment and 100-year flood-plain zones have similar land use restrictions because a water impoundment zone consists of the reservoir's 100-year flood plain.

Lands located within the Galesville water impoundment zone cannot be developed or subdivided. In addition, existing developments are considered nonconforming use. With project construction, most lands within the zone will be purchased in fee title by Douglas County. All but one household within the impoundment zone will be purchased and relocated.

Since the DES was prepared, the county has tentatively decided to construct a roller-compacted concrete dam at the Galesville site instead of an earthfill dam. This design change eliminated the need to purchase and relocate one residence located within the water impoundment zone.

Once final surveying for the Galesville Project is complete, Douglas County will undertake a zonal change to reduce the boundary of the water impoundment zone. It is anticipated that only a small undeveloped portion of the resident's property will be retained within the modified water impoundment zone. The county will obtain an easement for this water impoundment zone parcel. The landowner's residence and remaining property will no longer be affected by the current zoning restriction.

Letters

This section includes all letters received as a result of the review of the draft environmental statement. Reclamation's responses to specific comments are included.

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5-7-83 Allen L. Johnson (Lombard, Gardner, Honsowetz, Brewer and Schons, Attorneys at Law) C-67

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Medford District Office
3040 Biddle Road
Medford, Oregon 97501

IN REPLY REFER TO:
1793(110.6e)

NO RESPONSE NECESSARY

Office of Environment (PN 150)
Bureau of Reclamation
Box 043
555 West Fourth Street
Boise, ID 83724

APR 23 1983

Gentlemen:

We have received the Draft Environmental Statement (DES 83-13) on the Galesville Project in Douglas County, Oregon and found that our comments in regard to the Preliminary EIS have been addressed adequately.

Please notify us upon the filing of the Final EIS so that we may begin issuing the required right-of-way grant to Dougls County.

If you have any further questions please call me at 776-4332 or FTS 424-4332.

Sincerely yours,

Area Manager

United States Department of the Interior
NATIONAL PARK SERVICE
Pacific Northwest Region
Westin Building, Room 1920
2001 Sixth Avenue
Seattle, Washington 98121

IN REPLY REFER TO:
L7619(PNR-RE)
DES 83/13

April 29, 1983

Memorandum

To: Regional Director, Bureau of Reclamation, Boise, Idaho

From: Acting Regional Director, Pacific Northwest Region

Subject: Draft Environmental Statement -- Galesville Project, Douglas County, Oregon

We have reviewed the Galesville Project Draft Environmental Statement and have no problems with the proposed action. Our only comment, in the form of a question, regards the timing of recreation facility development and projections of recreation use.

Recreation use at the Galesville alternative would average 45,000 recreation days. Facilities to support this use include picnic sites, a picnic shelter, restrooms, a boat ramp, access roads, parking areas, and foot trails. At Honeysuckle initial recreation facility development and recreation use "is expected to be roughly the same" as for Galesville despite limitations cf steep topography.

In Table 2 recreation use for Honeysuckle is shown as 45,000 recreation days. Our questions revolve around the word "initial": what period of time is "initial," what is the time frame of the facilities to be constructed at Galesville, and what is the period of time represented by the average recreation use figure of 45,000 recreation days?

Thank you for this opportunity to comment on your draft environmental statement.

Charles H. Odegaard
Charles H. Odegaard

RESPONSE

Recreation facility development would be accomplished in one step. Construction would occur within 1 year of the time when reservoir filling was begun. The use of the term "initial" in the DES is misleading in that development under the proposed project is not to be phased. However, additional recreation development might be required in the future if the need arises. Such future developments would be funded independent of the proposed project. It is anticipated that recreation use will build up over the first 3 years the facilities are in place, and the 45,000-recreation-day figure represents the average annual number of recreation-days that can be expected thereafter.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
Portland Field Office
727 N. E. 24th Avenue
Portland, Oregon 97232

Reference: ES

May 6, 1983

NO RESPONSE NECESSARY

To : Regional Director, Bureau of Reclamation, Portland, Oregon

From : Field Supervisor, Fish & Wildlife Service, Portland, Oregon

Subject: Draft Environmental Statement on the Galesville Project, Douglas County, Oregon (EC 83/8)

We have reviewed the subject draft environmental statement on the Galesville Project, Douglas County, Oregon and provide the following comments:

The Fish and Wildlife Service has participated in the planning process for the proposed project as a cooperating agency. In assuming this role we have been consulted and have provided recommendations in regard to investigations designed to preserve and protect the environmental integrity of the area. This cooperating process has maximized the effort in avoiding damage to, or destruction of fish and wildlife resources and their habitat.

Based on the information submitted, the proposed project should not have a significant adverse impact on area fish and wildlife resources. The draft document is adequate and basically describes impacts associated with the preferred alternative in conjunction with anadromous and resident fish.

Design measures concerning the fish facilities and their subsequent operation must comply with specifications of the State and Federal resource agencies. The Service will comment on this aspect of the project in conjuction with the hydro licensing process at the appropriate time.

We appreciate having had the opportunity to review this draft document. Please forward a copy of the final when it becomes available.

Russell D. Peterson

United States
Department of
Agriculture

Soil
Conservation
Service

1220 S. W. Third Avenue
16th Floor
Portland, Oregon 97204

NO RESPONSE NECESSARY

April 22, 1983

Gaye W. Lee
Office of Environment (PN 150)
Bureau of Reclamation
Box 043
Boise, Idaho 83724

Dear Ms. Lee:

We have reviewed the Draft Environmental Statement for the Galesville Project in Douglas County, Oregon. The stored water resulting from this project will be beneficial to agriculture and other natural resources. The impoundment will inundate approximately 300 acres of farmland but will provide irrigation water for about 7,000 acres. Production on newly irrigated lands will increase dramatically and individual landowners will have more options in selecting crops to grow.

You have adequately addressed all environmental concerns and the net effects of the proposed project are positive.

Thank you for the opportunity to review this document.

Sincerely,

JACK P. KANALZ acting
State Conservationist

Attachment

The Soil Conservation Service
is an agency of the
Department of Agriculture

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
Atlanta GA 30333
(404) 452-4257

May 2, 1983

Ms. Gaye W. Lee
Office of Environment (PN 150)
Bureau of Reclamation
Department of Interior
Box 043, 555 West Fort Street
Boise, Idaho 83724

Dear Ms. Lee:

We have reviewed the Draft Environmental Impact Statement (EIS) for Galesville Project, Douglas County, Oregon. We are responding on behalf of the Public Health Service.

1 The EIS does not address mosquito or other vectors. The Final EIS should provide a description of present and anticipated mosquito problems in the proposed reservoir area. What control measures are anticipated? What uses of insecticides, if any, are planned? How will they be applied and in what quantities?

2 It is noted that recreational activity areas will be developed as a part of this project. No mention is made of the water supply and treatment, sewage disposal, or solid waste disposal aspects for those recreational areas. These issues should be addressed in the Final EIS.

3 The Final EIS should also discuss whether any hazardous waste sites or municipal landfill sites have either been previously located, or are now located, in the project area. If so, types of wastes should be indicated, along with a discussion of actions to be taken at those sites before reservoir filling.

Thank you for the opportunity to review this document. We would appreciate receiving a copy of the Final EIS when it becomes available. Should you have any questions concerning our comments, please contact Mr. Lee Tate at FTS 236-4163.

Sincerely yours,

Frank S. Lisella, Ph.D.
Chief, Environmental Affairs Group
Environmental Health Services Division
Center for Environmental Health

RESPONSE

1. *Mosquito problems in Douglas County as a whole and at other impoundments in the area are rare. The flushing rate of the reservoir at Galesville and surface mixing by wind should be sufficient to avoid stagnant conditions. Consequently, mosquito breeding habitat would be limited. Should vector problems occur, however, Douglas County would consult with the State Department of Health to devise and implement appropriate mosquito or other vector control measures.*

2. *Water to be used at the proposed recreation site is expected to meet all drinking water standards without treatment. If needed, a treatment system would be selected during final design studies. In any event, the system would comply with all applicable Federal, State, and local health and water quality laws and regulations. The system selected, as well as the other features of the water system to be installed, would be approved by the Oregon Department of Environmental Quality and local health officials.*

   Sewage disposal facilities would be designed in accordance with Oregon Department of Environmental Quality and other local health district regulations. Page 3-GV-4 of the DES includes a discussion of soil suitability for septic drainfields at the proposed recreation site. Sewage facility operation and maintenance and solid waste disposal services at the recreation site would be performed by the Douglas County Parks Department. Solid wastes collected from the recreation area would be disposed at the nearest State approved sanitary landfill.

   Existing septic tanks within the impoundment area would be pumped and backfilled prior to filling the reservoir.

3. *No hazardous waste sites or municipal landfill sites have been or are now located in the project area.*

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Washington, D.C. 20235
OFFICE OF THE ADMINISTRATOR

May 2, 1983

Ref. No.: 156

Mr. Wayne O. Deason
Director, Office of Environmental Affairs
Bureau of Reclamation
Department of the Interior
Washington, D.C. 20240

Dear Mr. Deason:

This is in reference to your draft environmental impact statement for the Galesville Project, Douglas County, Oregon. Enclosed are comments from the National Oceanic and Atmospheric Administration.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving two copies of the final environmental impact statement.

Sincerely,

Joyce M. Wood
Chief
Ecology and Conservation Division

Enclosure

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Washington, D.C. 20230

MAR 17 1983

TO: PP2 - Joyce M. Wood

FROM: N - K. E. Taggart

SUBJECT: DEIS 8303.06 - Galesville Project, Douglas County, Oregon

The subject statement has been reviewed within the areas of the National Ocean Service's (NOS) responsibility and expertise, and in terms of the impact of the proposed action on NOS activities and projects.

1 Geodetic control survey monuments may be located in the proposed project area. If there is any planned activity which will disturb or destroy these monuments, NOS requires not less than 90 days' notification in advance of such activity in order to plan for their relocation. NOS recommends that funding for this project includes the cost of any relocation required for NOS monuments. For further information about these monuments, please contact Mr. John Spencer, Director, National Geodetic Information Center (N/CG17) or Mr. Charles Novak, Chief, Network Maintenance Branch (N/CG162), at 6001 Executive Boulevard, Rockville, MD 20852.

RESPONSE

1. *If any geodetic control survey monuments are located in the proposed project area, Douglas County will notify the National Ocean Service (NOS) 90 days or more in advance of construction activity. The cost for any relocation required for NOS monuments would be funded as part of the project.*

United States Department of Agriculture
Forest Service
Pacific Northwest Region
319 S.W. Pine
P.O. Box 3623
Portland, OR 97208

NO RESPONSE NECESSARY

Reply to 1950

Date May 3, 1983

Regional Director, Attn: Code 150
Pacific Northwest Region
Bureau of Reclamation
Box 043, 550 West Fort Street
Boise, ID 83724

Dear Sir:

Thank you for the opportunity to review the Draft Environmental Impact Statement for the Galesville Project, Douglas County, Oregon.

Our representative, R. D. Swartzlender of Roseburg, Oregon, Umpqua National Forest has worked with Douglas County Officials to find satisfactory solutions to any concerns we may have had. We therefore have no formal comments to make within the scope of our agency jurisdiction and expertise.

Sincerely,

Trask

FOR JEFF M. SIRMON
Regional Forester

cc: Umpqua NF
WS - Allen

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

May 4, 1983

Planning Division (PL-NR-EQ)

Ms. Gaye W. Lee
Office of Environment (PN150)
Bureau of Reclamation
Box 043
550 West Fort Street
Boise, Idaho 83724

Dear Ms. Lee:

The Portland District, Corps of Engineers has reviewed the Draft Environmental Impact Statement (DEIS) for the Galesville Project, Douglas County, Oregon, and provides the following comments:

a. Page 2-13, Section 9. Wildlife Habitat: It is our understanding that Douglas County has considered creating wetlands in the upper 2 miles of the reservoir. Will wetland creation be included as a part of the proposed action?

b. Page 3-GV-56, Paragraph 6: Even though the wetlands are discontinuous patches which have been grazed, their function in terms of hydrologic regulation most likely remains.

c. Page 3-GV-56, Paragraph 7: Recommend deletion of the entire paragraph. The discussion of regulatory authorities is not appropriate under the heading of affected environment, and the conclusion that no important wetlands exist within the impoundment area is not supported by the preceding text.

These comments serve as the Corps of Engineers' response to the enclosed March 8, 1983, letter to the Office of the Chief of Engineers.

RESPONSE

a. The Oregon Department of Fish and Wildlife (ODFW) will direct clearing and development of the upper 2 miles of the reservoir for wildlife habitat enhancement. Whether this will include wetlands development has not yet been determined.

b. Some hydrologic regulation capability remains. It has been diminished by soil compaction by animal hooves and loss of vegetation (allowing more rapid drying and/or runoff). The hydrologic regulation function of wetlands will be supplanted by similar hydrologic regulation by the proposed reservoir, including ground-water recharge and floodflow regulation. DES page 3-GV-56, paragraph 6, has been revised to read: "Most wetland areas in the project area are small discontinuous patches currently affected by human and livestock activity. This has lessened their value as wildlife habitat."

c. A description of regulatory authority is needed to help the reader understand the proposal's compliance with regulations and Executive Order 11990, Protection of Wetlands. In the context on the Executive Order and Federal regulations, the scattered patches of disturbed wetlands found in the impoundment area cannot be classified as "important" wetlands.

Thank you for the opportunity to review this document.

Sincerely,

for William R. Akre
Patrick J. Keough, P.E.
Chief, Planning Division

Enclosure

Copies Furnished:

Bureau of Reclamation
Office of Environmental Affairs
Washington, D.C. 20240

Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

In reply refer to: SJ May 6, 1983

U.S. Department of the Interior
Bureau of Reclamation
Pacific Northwest Region
Box 043 - 550 West Fort Street
Boise, Idaho 83724

Dear Sirs;

We have reviewed your Draft Environmental Impact Statement (EIS) on the Galesville Project in Douglas County, Oregon. We submit the following comments for your consideration:

(1) The Environmental Statement does not clearly state the proposal(s) of the Bureau of Reclamation and the other cooperating Federal agencies. It would appear that the proposal on the part of the Bureau, for example, is to grant to Douglas County a Federal loan under the Small Reclamation Projects Act for development of the Galesville Project, yet this is never clearly stated as the proposal in the documents themselves.

(2) The Environmental Statement considers four major alternative projects, but does not deal with alternative designs, or levels and types of mitigation available for incorporation as part of each alternative project. For example, the alternative of providing fish passage facilities for the Galesville Project was not analyzed. Other alternatives such as providing more or less recreational facilities at each project could have been similarly considered.

(3) Additional fishery mitigation and enhancement should be addressed, and the option of providing fish passage facilities at the Galesville, Gold Mountain, and Applegate Creek sites considered. To merely state that downstream habitat improvement and hatchery production will make up for loss of upstream habitat does not discharge the NEPA obligation to analyze the possibilities of doing both the planned actions and providing fish passage facilities to maintain access to upstream habitat, or of providing fish passage facilities in lieu of a hatchery mitigation program.

(4) It is not clear from the Environmental Statement whether proceeding with the Galesville Project would preclude construction of the alternative projects. If it is likely any of the alternative projects will proceed, cumulative impacts should be addressed.

RESPONSE

(1) Document clarified (see FES page 1)

(2) Fish passage facilities were considered by the National Marine Fisheries Service, Oregon Department of Fish and Wildlife, and U.S. Fish and Wildlife Service and found not to be viable for the Galesville Project. The fish mitigation and enhancement proposal as presented in the FES was developed and agreed to by the above agencies. Recreational facilities at each of the sites have been considered in accordance with Douglas County's recreation plan.

(3) See above comment

(4) The Galesville Project would preclude construction of the alternative projects by the county.

(5) The rationale for selecting the Galesville alternative as the proposed alternative is not made clear in the document. The environmentally preferable alternative is not identified.

Thank you for the opportunity to comment on the Draft EIS.

Sincerely,

Anthony R. Morrell

Anthony R. Morrell
Environmental Manager

RESPONSE *(continued)*

(5) See pages 2-24 through 2-26 of the DES.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Washington, D.C. 20235
OFFICE OF THE ADMINISTRATOR

May 9, 1983

Ref. No. 156

Mr. L. W. Lloyd
Regional Director
U.S. Bureau of Reclamation
Pacific Northwest Region
Federal Building and U.S. Courthouse
Box 043-550 West Fort Street
Boise, ID 83724

Dear Mr. Lloyd:

Enclosed are additional comments from the National Oceanic and Atmospheric Administration on your draft environmental impact statement for the Galesville Project, Douglas County, Oregon.

Thank you for giving us an opportunity to provide these comments.

Sincerely,

Joyce Wood

Joyce M. Wood
Chief
Ecology and Conservation Division

Enclosure

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
ENVIRONMENTAL & TECHNICAL SERVICES DIVISION
847 NE 19th AVENUE, SUITE 350
PORTLAND, OREGON 97232
(503) 230-5400

April 26, 1983 F/NWR5:JRE

Mr. L. W. Lloyd, Regional Director
U.S. Bureau of Reclamation
Pacific Northwest Region
Federal Building and U.S. Courthouse
Box 043-550 West Fort Street
Boise, ID 83724

Dear Mr. Lloyd:

The National Marine Fisheries Service (NMFS) has reviewed the Draft Environmental Impact Statement (DEIS) for the Galesville Project in Douglas County, Oregon. The following comments are offered for your consideration. A signed official reply from the Department of Commerce is forthcoming.

General Comments

Considerable attention has been given in the DEIS to measures aimed at protecting and improving the anadromous fishery downstream of the proposed Galesville Dam. We generally concur with the proposed operation schedule and the overall conceptual plan for fish handling at the dam. NMFS is aware that Douglas County is in the process of applying to the Federal Energy Regulatory Commission (FERC) for a hydroelectric generating license at this project. We will comment in detail on the Galesville Dam fish facility design and operation when we review the FERC license application when it is available to us in the near future.

Specific Comments

1 Page 15, paragraph 8. No mention is made of the disposition of steelhead returning to the damsite, although coho are treated thoroughly.

2 Pages 2-11, paragraph 4. Fish Facilities. Both Oregon Department of Fish and Wildlife (ODFW) and NMFS should review the detailed fish facility design. The text indicates that only ODFW will provide design input on facilities at the dam.

3 Pages 2-14, paragraph 8. Fish Facilities operation. Same comment as Page 15 above.

Based on the information we have received thus far, these constitute our comments on the Galesville Dam DEIS. Thank you for the opportunity to review this document.

Sincerely,

Dale R Evans

Dale R. Evans
Division Chief

RESPONSE

1. *The Oregon Department of Fish and Wildlife (ODFW) in consultation with the National Marine Fisheries Service has developed a contingency plan for the disposition of winter steelhead. If the ODFW determines that there are large numbers of steelhead congregated below the Galesville damsite, the contingency plan would be put into effect. The contingency plan is to operate the fish capture facility located at the base of the dam during the peak of the winter steelhead migration period. The captured adults would be trucked to the nearest steelhead-producing tributaries located below the damsite for spawning.*

2. *This concern has been incorporated in the FES on page 38. Final fish facility layout and design will be defined during the dam's final design stage in cooperation with the ODFW and National Marine Fisheries Service.*

3. *See item 1 above*

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

REPLY TO ATTN OF: M/S 443

MAY 1 1 1983

Office of Environment (PN 150)
Pacific Northwest Region
Bureau of Reclamation, Department of the Interior
Box 043, 555 West Fort Street
Boise, Idaho 83724

ATTN: Ms. Gaye W. Lee

RE: Galesville Project
Draft Environmental Impact Statement

Dear Ms. Lee:

The Environmental Protection Agency (EPA) has completed reviewing the Draft Environmental Impact Statement (Draft EIS) on Douglas County, Oregon's proposed Galesville Project. We appreciate the additional time which you provided for our review.

The Draft EIS provides a generally thorough and useful description of the alternative projects considered by the sponsor. The analysis of the effects of these alternatives is, in most respects, well balanced; that is, each receives an appropriate degree of attention. However, there are two respects in which the analysis in the Draft EIS merits expansion.

1 First, the Gold Mountain and Applegate Creek alternative projects need a more thorough water quality evaluation. The differences in reservoir site topography and storage volumes are such that each reservoir will probably have a different temperature and dissolved oxygen (DO) profile than the proposed Galesville reservoir. The water quality effects should, therefore, be measurably different. This expanded evaluation should be detailed enough to allow your water quality specialist to reach conclusions in the Final EIS regarding whether any of the alternatives would cause violations of the applicable water quality standards. Additionally, the high suspended sediment loads in Applegate Creek, referred to in the Draft EIS, argue for a quantitative evaluation of this alternative's effects on suspended sediment concentrations and turbidity levels downstream of the project site.

2 Second, the Draft EIS, while describing the benefits and costs of each of the apparently feasible alternatives, does not provide a true benefit/cost (B/C) analysis for any of them; that is, it does not provide either the net present values of the alternative investments or their B/C ratios. We consider this to be a significant omission for the following reasons:

RESPONSE

1. *The water quality analyses for all the alternatives provide comparable data on each of the sites so that the relative impact of each can be evaluated. The Oregon Department of Environmental Quality has indicated that there appear to be no obstacles to certifying the project's compliance with the requirements of section 401 of the Federal Clean Water Act. Conducting further detailed water quality analyses for the alternative sites would only be justified if for some reason they were to become firm proposals.*

2. *Evaluation of applications under the Small Reclamation Projects Act (Public Law 84-984) does not involve a direct benefit-cost analysis such as has been suggested. Loan factor criteria derived by the Office of Management and Budget and the Bureau of Reclamation in May 1974 were utilized in the analysis of the Galesville proposal. This application is in compliance with those criteria.*

1. The magnitude of expected future water supply requirements is, at best, questionable. For example, the USBR field review for the proposed alternative concluded that the irrigation water supplied by the Galesville project would be used to create a "life style" rather than produce income (implying that, even at the low prices proposed for the project, little market exists for it).

2. Each of the alternatives entails a different balance of effects on the human environment. A formal B/C analysis would provide information that is important to the balancing decisions. Specifically, the B/C analysis would tell the reader and the decision maker what price must be paid for each particular mix of benefits.

3. Formal B/C analyses were required by the old Water Resources Council Principles & Standards and are still required by the new "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies."[1]

4. The large differences in benefits and costs among the alternatives described in the EIS make a formal B/C analysis essential to an intelligent weighing of the alternatives. Thus, the inclusion of a formal B/C analysis is required by the provisions of the Council on Environmental Quality Regulations governing B/C analysis.[2]

In an attempt to improve our ability to weigh the alternatives we completed a formal B/C evaluation of the three potentially feasible alternatives (Galesville, Gold Mountain, and Applegate Creek). The results of this evaluation, presented below, indicate that there are significant differences among the projects. We have attached, for your information, a more detailed description of the derivation of these results.

ALTERNATIVE	NET PRESENT VALUE	B/C RATIO	RATE OF RETURN
Galesville:	-10,978,645	0.66	5.229+%
Gold Mountain:	- 8,768,687	0.68	5.33+%
Applegate Creek:	- 4,845,038	0.42	3.33+%

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[1] These new principles were signed by the President on February 3, 1983 and are applicable to implementation studies completed after June 3, 1983. This EIS, clearly an implementation study, would be completed after this deadline.

[2] 40 C.F.R. 1502.23

Based on these two concerns, we have rated the Draft EIS LO-2 [LO: Lack of Objections; 2: Insufficient information] in accordance with our responsibility, under Section 309 of the Clean Air Act, to determine whether the environmental effects of proposed major Federal actions are acceptable in terms of public health, welfare, and environmental quality.

We hope that our comments and recommendations will assist you in your efforts to prepare a fully adequate Final EIS. Should you need to discuss them or how they might best be addressed, please contact Dick Thiel, our Environmental Evaluation Branch Chief, at (FTS) 399-1728 or (206) 442-1728.

Sincerely,

Gary L. O'Neal
for L. Edwin Coate, Acting
Regional Administrator

Enclosure

cc: Oregon Operations Office

ATTACHMENTS:

"Galesville Project Benefit/Cost Analysis Methodology and Assumptions"

"Galesville Project Cashflows"

"Gold Mountain Project Cashflows"

"Applegate Creek Project Cashflows"

The attachments are available for review at the Bureau of Reclamation regional office in Boise, Idaho, and at the Douglas County Water Resources Survey office in Roseburg, Oregon.

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON 20426

OEPR/DHL
Project No. 7161-000
Oregon

MAY 12 1983

Director
Office of Environmental Affairs
Bureau of Reclamation
Attention: Code 156
Washington, D. C. 20240

Dear Sir:

This is in response to your request dated March 8, 1983, for comments on the draft environmental impact statement (DEIS) for the proposed Galesville Project, FERC No. 7161-000, in Douglas County, Oregon.

The Commission's staff offers the following comments on the DEIS:

	RESPONSE
(1) Table 1-7 on page 1-16 should indicate that a license would be required from FERC for the proposed waterpower project; the procedure for obtaining a license requires filing of an appropriate application, including an Exhibit E (environmental report);	(1) *DES table 1-7 has been modified to indicate that a license would be required from FERC for the proposed waterpower project (see FES page 38).*
(2) statements on pages 3-GV-11 through-13 should be revised to state that the Galesville Project will be subject to the FERC dam safety program and that construction of project works could not commence until the design, contract plans and specifications, and the quality control program are approved by the FERC; FERC's dam safety program includes inspections by FERC personnel during construction and operation, as well as inspections by an engineering consultant at 5-year intervals; a copy of a statement typically describing the safety inspection responsibility is enclosed for your information;	(2) *Douglas County will adhere to FERC's Dam Safety Program. However, because the Bureau of Reclamation, Corps of Engineers, FERC, and the Oregon Division of Dam Safety will review project designs, specifications, and construction, the Bureau of Reclamation believes the requirement that a board of independent consultants be employed to perform these duties is an unnecessary duplication of effort. The general statement provided has been added to DES page 3-GV-13 (see FES page 39), but the second paragraph has been deleted.*
(3) the EIS should include elevation and section views of proposed project structures;	(3) *Elevation and section views of proposed project structures are included in the county's FERC application (No. 7161). The Bureau of Reclamation believes the inclusion of engineering drawings in the DES is inappropriate and unnecessary unless pertinent to the environmental evaluation.*

(4) in Table 3-GV-35, on page 3-GV-121, break out and show cost of power facilities; and

(5) on page 3-GV-133, identify power purchaser, provide PP&L wheeling charge, if any, and indicate how the rate (7.77 cents per kilowatt hour) will go up each year of the contract.

Thank you for the opportunity to provide comments.

Sincerely,

Lawrence R. Anderson

Lawrence R. Anderson
Director, Office of Electric
Power Regulation

Enclosure: "Safety Inspection"

cc: Mr. John Youngquist
Deputy Director for Water
Resources
Douglas County
Department of Public Works
Room 104 Justice Building
Roseburg, Oregon 97470

RESPONSE (continued)

(4) Table 3-GV-35 on DES page 3-GV-121 has been revised accordingly (see FES page 40).

(5) Energy generated at the Galesville site would be purchased and marketed by the Pacific Power and Light (PP&L) Company. No wheeling charges would be incurred because PP&L would upgrade and utilize their own power transmission facilities. PP&L has contracted with Douglas County to purchase power starting at 7.7 cents per kilowatt-hour for the first year of power generation. The price will increase thereafter in accordance with the contract, a copy of which is included in the county's FERC application.

Safety Inspection

The FERC staff inspects licensed projects, both during and after construction, to ensure their physical safety and the safety of the public, including recreational users, and to ensure that the Licensee complies with any special construction and operating requirements of the license. Projects under construction are usually inspected at least once a month. The inspecting engineer reviews construction and testing procedures, and notes progress and quality of construction in accordance with the design drawings approved by the Commission. Additional inspections are made during critical construction stages, such as foundation and cutoff trench excavations, abutment treatment, diversion and closure, and initial filling of the reservoir.

Licenses issued for major construction include a special article that requires the Licensee to employ a board of qualified independent consultants to review the design, specifications, and construction of the project. The board is required to assess the construction inspection program, the construction procedures and progress, the planned instrumentation, the filling schedule for the reservoir, and the plans for surveillance during initial filling of the reservoir.

After the project is placed in operation, it is inspected by the FERC staff, normally once a year. During these annual inspections, staff engineers review the overall development from a safety standpoint, and also assess whether the Licensee is operating and maintaining the facilities in accordance with the license provisions. Licensees are required to notify the Commission promptly of any conditions that could jeopardize the safety of the project, and special inspections are made to assess such problems. Additional staff inspections are also made following natural disasters such as floods, landslides, or earthquakes.

Part 12 of the Commission's Regulations requires periodic safety inspections of licensed dams by qualified independent consultants at regular 5-year intervals. This requirement applies to those hydroelectric projects having a dam exceeding 35 feet in height above streambed or a gross reservoir storage capacity of 2,000 acre-feet. The inspections are performed by, or under the responsibility and direction of, qualified independent consultants employed by the Licensee. The basic purpose of the consultant's inspection is to determine whether there are deficiencies or potential deficiencies in the design, quality and adequacy of maintenance, or methods of operation of the project structures that might endanger public safety.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
SEATTLE REGIONAL OFFICE
ARCADE PLAZA BUILDING, 1321 SECOND AVENUE
SEATTLE, WASHINGTON 98101

REGION X

NO RESPONSE NECESSARY

MAY 12 1983

Pacific Northwest Region
Bureau of Reclamation
Box 043
555 West Fort Street
Boise, ID 83724

Dear Sir or Madam:

SUBJECT: Draft Environmental Impact Statement
Galesville Project, Douglas County, Oregon

Our Portland Area Office has reviewed your draft statement.

We find no conflicts with any of our projects. We believe the proposed Galesville project will contribute to the continued economic growth of the area. Thus we support the Galesville alternative.

Thank you for the opportunity to comment.

Sincerely,

William Y. Nishimura
Regional Administrator, 10S

AREA OFFICES
Portland, Oregon · Seattle, Washington · Anchorage, Alaska

VICTOR ATIYEH
GOVERNOR

Executive Department
155 COTTAGE STREET NE., SALEM, OREGON 97310

May 2, 1983

Regional Director
Bureau of Reclamation
Attention Code 150
Box 043
550 West Fort Street
Boise, ID 83724

Subject: PNRS 830314-019-4
Galesville Project

Thank you for submitting the subject draft Environmental Impact Statement for State of Oregon review and comment.

The draft was referred to the appropriate state agencies. The Division of State Lands offered the enclosed comments which should be addressed in preparation of the final Environmental Impact Statement.

We will expect to receive copies of the final statements as required by Council of Environmental Quality Guidelines.

Sincerely,

INTERGOVERNMENTAL RELATIONS DIVISION

Dolores Streeter

Dolores Streeter
A-95 Coordinator

DS:tw

Enclosures 1

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

Intergovernmental Relations Division
155 Cottage St NE , Salem, Oregon, 97310
Phone Number: 378-3732

RECEIVED
MAR 15 1983
DIVISION OF STATE LANDS

APR 7 19[illegible] P N R S S T A T E R E V I E W

Project #: OR 83[illegible]-4 Return Date: APR [illegible]

ENVIRONMENTAL IMPACT REVIEW PROCEDURES

If you cannot respond by the above return date, please call to arrange an extension at least one week prior to the review date.

ENVIRONMENTAL IMPACT REVIEW
DRAFT STATEMENT

( ) This project has no significant environmental impact.

( ) The environmental impact is adequately described.

(X) We suggest that the following points be considered in the preparation of a Final Environmental Impact Statement.

( ) No comment.

Remarks

1 A removal permit might be required for construction of the Galesville dam project if material utilized in construction is taken from the channel bed or banks (include on table 1-7).

2 Pg. 3 - GU-137, Section 31, should include statement that increased erosion would be a long term effect of maintained water levels over an extended period of time. Also, loss of aggregate to downstream recruitment was not mentioned in Enviromental impact Section.

Agency Lands By William Park

PNRS #8

RESPONSE

1. *DES table 1-7 has been expanded to include this potential impact requirement (see FES page 38).*

2. *The statement "Soil losses resulting from erosion during construction and operation would be irreversible" (see DES page 3-GV-137) reflects your concern. Specific erosion effects due to wind-driven wave action, motorboat wakes, and reservoir drawdown are discussed on DES page 3-GV-39. The effect of an impoundment on the natural erosion and deposition cycle is discussed on DES page 3-GV-36, paragraphs 3 and 4. In addition, the following sentence has been added: "Some reduction of gravel recruitment to downstream areas would occur because of deposition in the reservoir." (see FES page 39).*

VICTOR ATIYEH
GOVERNOR

Water Resources Department
JUSTICE BUILDING, Rm. 104, ROSEBURG, OREGON 97470 PHONE 440-4255
FIELD OFFICE: COOS COUNTY ANNEX, Rm. 117
270 NORTH CENTRAL, COQUILLE, OREGON PHONE 396-5342

May 3, 1983

Bureau of Reclamation
Box 043 - 550 West Fort St.
Boise, Idaho 83724

ATTN: 150

Dear Sirs:

This letter is to further clarify my testimony at the hearing on April 28, 1983 in Roseburg, Oregon on the adequacy of the Galesville Project DES.

1 The first item discussed in my testimony was a sentence in paragraph 5, page 3-GV-49:

> "Users who hold rights predating the establishment of minimum flows in 1958 cannot legally be restricted at all regardless of the stream level. Three hundred and two, or 64 percent of the rights in the service area, fall into this category."

This statement is incorrect in general, but partially true in this case. Under Oregon Water Law, "first in time is first in right" and an appropriator may "dry up" the stream if his right predates the establishment of minimum flows. Furthermore, if the amount the stream provides is less than the amount to which his right entitles him, he has the right to demand that the Watermaster regulate or restrict enough rights upstream with priority dates later than his so that his deficit is satisfied. For example, in the summer of 1981, water rights on Cow Creek from Glendale upstream with priorities later than 1917 were regulated for prior rights. The statement is partially correct in that prior right distribution has not occurred (i.e. the stream has not been dry) in reaches 2, 4, and 5 in the past. I would recommend, therefore, striking the phrase "cannot legally be restricted at all regardless of stream level" from the sentence.

2 The second items discussed in my testimony was the last sentence in paragraph 5, page 3-GV-51:

> "In those years when inflow is insufficient to meet all the needs, water would be supplied on the priority basis established by Oregon Water Law. Under this system, holders of the most recent water rights have their withdrawals curtailed first. Water withdrawals are curtailed by the Watermaster to preserve the adopted minimum stream flows for protection of fish and wildlife and to ensure municipal supplies."

RESPONSE

1. *Correction made. The paragraph has been rewritten to read: "Users who hold rights predating the establishment of minimum flows in 1958 cannot legally be restricted because of minimum flows. Three hundred and two, or 64 percent of the rights in the service area, fall into this category" (see FES page 39).*

2. *Correction made. The paragraph has been rewritten to read: "In those years when inflow is insufficient to meet all the needs, water would be supplied on the priority basis established by Oregon water law. Under this system, holders of the most recent water rights have their withdrawals curtailed first. Water withdrawals are curtailed by the watermaster to preserve the adopted minimum streamflows for protection of fish and wildlife and to deliver water to senior right holders downstream when their supply is less than the amount to which their right entitles them" (see FES pages 39 and 40).*

2 This statement is incorrect in that I order the curtailment of use only for preservation of minimum stream flows and for downstream prior rights which are low on water, as earlier discussed. The Watermaster is not authorized to regulate users to ensure municipal supplies as a matter of course. Upstream users would only be regulated in case the municipality held an equal or prior water right and was low on water.

Therefore, I would recommend striking the phrase "ensure municipal supplies" and replacing it with "deliver water to senior right holders downstream when their available supply is less than the amount to which their right entitles them"

Finally, I testified that with these exceptions, it was my opinion that the Galesville Project DES does adequately assess the current water supply situation in the study area as well as the current and future water needs of the area. It should be realized, of course, that the Douglas County Watermaster's Office provided a large portion of the information and data relating to these matters contained in the DES.

If I can provide further information or clarification, please let me know.

Very truly yours,

Gary L. Ball

Gary L. Ball
Watermaster

GLB/dd

cc: Walter N. Perry
Department of Water Resources

VICTOR ATIYEH
GOVERNOR

Department of Fish and Wildlife
SOUTHWEST REGIONAL OFFICE
3140 N.E. STEPHENS STREET, ROSEBURG, OREGON 97470 PHONE ~~6[illegible]~~ 440-3353

NO RESPONSE NECESSARY

May 6, 1983

Regional Director
Pacific Northwest Region
Bureau of Reclamation
Box 043
550 W. Fort Street
Boise, Idaho 83724

Dear Director:

This letter is to state the Department's agreement with "Galesville Project, Douglas County, Draft Environmental Statement."

Sincerely,

David P. Liscia

David P. Liscia
Assistant District Fish Biologist

bjp

VICTOR ATIYEH
GOVERNOR

Department of Transportation
PARKS AND RECREATION DIVISION
525 TRADE STREET SE., SALEM, OREGON 97310

May 16, 1983

Ms. Gaye W. Lee
Office of Environment (PN150)
Bureau of Reclamation
Box 043
555 W. Fort Street
Boise, ID 83724

RE: Galesville Project, Draft Environmental Statement

Dear Ms. Lee:

The State Parks and Recreation Division would like to express our appreciation for the opportunity to review this project. From the division's standpoint we find that this project would have no adverse effect on any of the programs or special areas of interest that the division would hold.

We would, however, like to make a comment concerning this project from the Statewide Comprehensive Outdoor Recreation Plan's point of view. We would suggest reconsideration of the recreation opportunity needs in Douglas County. (Douglas County SCORP needs analysis attached.) As can be seen from the most recent SCORP update, there is an apparent oversupply of boat launch lanes, picnic areas and campsites in the county. This is contrary to the information provided in the draft EIS. While we do realize that this material has been updated during the preparation of the draft, we feel that it is, however, pertinent to this project. It would appear that this revised material does not support the findings and conclusions drawn for the needs of those three facilities.

Question should also be raised concerning the anticipated draw-down during the summer months, peaking in September, of up to one-third of the surface acreage of water at a time when recreation demand is at its highest seasonal peak. (Page 2-10) The only apparent recreational need being served, then, would be spring and early summer fishing. The fact that there has been no allocation of water considered nor minimum levels established for recreational use and the type of water-dependant recreation being anticipated leads one to a conclusion of apparent incompatibility. Furthermore, fluctuation of water levels with exposed lake floor may diminish the aesthetic values.

RESPONSE

As indicated in the letter, the information contained in the updated Statewide Comprehensive Outdoor Recreation Plan was not available during preparation of the DES. The county will, however, reexamine the proposed recreational facilities in the light of the concerns expressed.

It should be noted that the updated State Comprehensive Outdoor Recreation Plan (SCORP) also shows a need for "district park" acreage (which was not the case in the 1978 SCORP). This need would in part be satisfied by the Galesville recreation plan. A district park would logically include the recreation facilities Douglas County proposes to construct as part of the Galesville Project.

Reservoir drawdown effects were considered in the recreation benefit analysis.

Ms. Gaye W. Lee
May 16, 1983
Page 2

This project, in our opinion, would be enhanced if it considered allocating minimum water levels to retain both the function of shorebased recreation facilities (e.g. boat launch lanes, ramps, swimming areas, floats, etc.) and the safety and aesthetic aspects of an exposed lake bottom. The aesthetic value while being harmed by any draw-down would at least be mitigated by establishing a minimum level.

Once again, thank you for the opportunity to be able to respond to this proposal.

Sincerely yours,

Alan J. Cook
State Recreation Planner

AJC:mah

DOUGLAS
COUNTY NEEDS

Facility	Unit	Supply	Gross Need	Net Need 1982	Net Need 1990	Net Need 2000
Camp Sites	Site	2,105	1,176	(929)	(681)	(400)
Picnic Tables	Table	2,071	1,039	(1,032)	(847)	(704)
Swimming Pools	Pool	3	6	3	4	5
Boat Ramps	Ramp	78	60	(18)	(9)	(3)
Walk/Hike Trails	Mile	74	202	128	157	175
Biking Trails	Mile	42	8	(34)	(33)	(32)
Bridle Trails	Mile	10	31	21	26	30
Ball Fields	Field	16	77	61	62	67
Tennis Courts	Court	27	37	10	11	13
All Purpose Cts.	Court	6	37	31	32	34
Golf	Holes	45	66	21	24	27
Neighborhood Pks.	Acres	110	460	350	370	390
Community Pks.	Acres	52	920	868	908	948
District Pks.	Acres	1,377	1,380	3	63	123

DOUGLAS
COUNTY

PLANNING DEPARTMENT

COURTHOUSE ANNEX NO. 2 · 205 S.E. JACKSON ST. · ROSEBURG, OREGON 97470 · (503) 673-1111

April 28, 1983

REGIONAL DIRECTOR, CODE 150
BUREAU OF RECLAMATION
BOX 043, 50 WEST FORT STREET
BOISE IDAHO 83724

RE: Galesville Project Environmental Hearing

Dear Sir:

The Galesville Project site which is the subject of the draft environmental statement has been designated by the Douglas County Comprehensive Plan, which has been acknowledged by the Land Conservation and Development Commission, for Public/Semi-Public uses. The Douglas County Comprehensive Plan officially establishes as County policy the goals, objectives and policies to govern land use planning.

The Galesville site is zoned (WI) Water Impoundment. This zone provides for "Water impoundments including accessory uses such as spillway, powerhouse, fish facilities and staging area" as a permitted use in the zone. The zone is intended to apply to areas which will have water impoundments in excess of 1000 acre feet.

Through quasi-judicial public hearing process and by adoption of amendments to the Douglas County Comprehensive Plan the County has determined that the Galesville site is the best available site for a Cow Creek Sub-Basin Water Impoundment to serve the water needs of south Douglas County. Findings of fact to support this determination are a part of the Douglas County Comprehensive Plan.

Environmental consequences of water impoundment development at the site have been considered in the course of these determinations. The benefits expected in provision of water for irrigation, municipal and industrial use and stream enhancement for fish have been documented.

Of particular concern to the County Planning Department in administering Federal Flood Insurance Program regulations as incorporated into County ordinance is the anticipated benefit to floodplain management in southern Douglas County when new water surfaces and floodplain mapping has been established. Any loss of small patches of wetlands that now exist in the area would appear to be compensated by flood control capacity achieved.

The development of this project at the Galesville site will be fully consistent with the County long range planning program.

Sincerely,

Keith L Cubic

Keith L. Cubic
Planning Director

KLC/swb

April 28, 1983

Proposed Addendum To Chapter I, Section D of

Draft Environmental Statement

GALESVILLE PROJECT

Douglas County, Oregon

By

Douglas County Planning Department

Addition to Subsection 1 (p. 1-24):

The Douglas County Board of Commissioners affirmed this decision on August 23, 1982. The Board of Commissioners' decision was appealed to the Oregon Land Use Board of Appeals (LUBA). On March 17, 1983, LUBA issued a decision which "remanded, in part" the Board of Commissioners' decision. However, LUBA's decision to remand was based on procedural grounds, not on a conclusion that the Board of Commissioners' decision violated any portion of the Douglas County Comprehensive Plan. This LUBA decision has been appealed to the Oregon Court of Appeals.

1 Furthermore, on October 6, 1982, the County adopted extensive comprehensive plan and zoning map amendments, including amendments to designate and zone the Galesville site for water impoundment use. The Douglas County Comprehensive Plan, including these amendments and an exception from Statewide Planning Goals 3 (Agricultural Lands) and 4 (Forest Lands) for the Galesville Site, was acknowledged by the Oregon Land Conservation and Development Commission (LCDC) to be in compliance with the statewide planning goals on January 18, 1983. This LCDC order has also been appealed to the Oregon Court of Appeals. Under Oregon law, all land use decisions must comply with the statewide planning goals or an acknowledged comprehensive plan.

Thus, at the present time, both Douglas County and LCDC have found the proposed Galesville project to be in compliance with the Douglas County Comprehensive Plan and Statewide Planning Goals, respectively. However, both these decisions are being appealed through the Oregon Courts.

RESPONSE

1. *This information has been incorporated on FES page 38.*

Telephone 503/440-4231
Room 305, Courthouse
Roseburg, Oregon 97470

UMPQUA REGIONAL COUNCIL OF GOVERNMENTS

NO RESPONSE NECESSARY

April 29, 1983

Douglas County Engineering Department
Room 219, Courthouse
Roseburg, Oregon 97470

Attention: John Youngquist

re: OMB Circular A-95 Areawide Clearinghouse Review
Project: DEIS: Galesville Project
Applicant: Bureau of Reclamation, Department of the Interior

The subject project was formally reviewed by this Council sitting in regular session on April 21, 1983. The Council voted to offer favorable comments to the Environmental Impact Statement.

The Draft EIS describes how the dam and surrounding layout was designed to mitigate and ameliorate both the impact of the project itself and the existing conditions of Cow Creek. It is obvious that Douglas County has worked closely with the state and federal resource agencies who are responsible for the safety and conservation of our natural resources. Douglas County should be complimented in their efforts to accommodate, wherever possible, the standards and criteria of these resource agencies.

Thank you for the opportunity to comment on the project. If you should have any questions on the Council's action, please feel free to call me.

Sincerely,

Shannon Davis, Coordinator

SD:rs

cc: State Clearinghouse Coordinator
Bureau of Reclamation

UMPQUA BASIN WATER ASSOCIATION, INC.
Route 2, Box 729
Roseburg, Oregon 97470
—
Telephone 672-5559

April 1, 1983

Regional Director
Bureau of Reclamation
Box 043-550 West Fort Street
Boise, ID 83724
Attention - Code 150

Gentlemen:

In response to your request for comments concerning the proposed Galesville Dam Project here in Douglas County, Oregon, on Cow Creek, may I say that I have lived here in Douglas County for 76 plus years and have watched the South Umpqua River many times in each of those years.

Looking back over those years, I remember when there was a dam on the South Umpqua River, here in Roseburg near the present fairgrounds. This dam had a concrete fish ladder on the West bank. In about 1914, my father and I have stood on the fish ladder and watched the big black Chinook salmon and the Silver Steelheads, go over the falls in the ladder like sheep, one after another, hour after hour, so I know the river did, and could again, support a good fish life.

In regards to the Galesville Dam, I believe it should be for water flow control only, and I stress this. As for electric generators, WPPS failures should prove we can not afford this, and, as a water flow regulator, the water should all be drained out when the fall and winter rains start, usually during the month of October.

The water would be used for irrigation as there are hundreds of good acres of bottom land along the South Umpqua River that could be more intensively farmed, if water in the low flow time of year could be assured and this would provide the assurance the farmers need, before they invest in the equipment necessary.

Recreation on the lake formed, could be used during the spring and early summer months, but, river flow control must be the prime objective.

We keep talking about the next 20-50 years, but we should be looking at the water needs for the next 500 years and all possible water storage sites along the entire South Umpqua River should be studied and set aside as the need and money becomes available.

Yes, Gentlemen, I support the concept of the Galesville project with the limit to flow control.

Sincerely,

Joe Morgan

JOE MORGAN

RESPONSE

Douglas County has provided for the largest flood control pool possible while maintaining a high degree of reliable summer water supply for irrigation and municipal and industrial use. It is felt this plan provides the best balance of water allocations among the various uses.

South Douglas
Soil and Water Conservation District

2621 NE Stephens · Roseburg, Oregon 97470 · (503) 673-8316

NO RESPONSE NECESSARY

April 14, 1983

Gaye W. Lee, Office of Environment
Bureau of Reclamation
Box 043
555 West Fort St.
Boise, Idaho 83724

The South Douglas Soil and Water Conservation District Board is unanimously in favor of having a dam built within the Cow Creek Watershed. The extremely low summer stream flows in southern Douglas County result in a lack of irrigation water that severely restricts agricultural production. In addition to the presently irrigated lands that suffer from an inadequate water supply, there are many acres of deep, productive soils along the South Umpqua River that are idle or under-utilized due to a lack of water.

A water impoundment at the Galesville site would provide critical irrigation water for the lands along Cow Creek and the South Umpqua River below Cow Creek. The proposed dam site would only take approximately 300 acres of farmland out of production. In contrast, water from the project would provide irrigation for approximately 7,000 acres.

The benefits of this type of water development project to all the people of Douglas County are so great that we urge the Public Works Department to proceed as rapidly as possible in building an impoundment. We feel that the net effect of the environmental impacts of this project will be very positive. Increased summer water flow in Cow Creek and the South Umpqua River will improve water quality, fish habitat and provide a better environment for all plants and animals dependent on stream corridors.

The project plans as set forth in the Draft Environmental Statement adequately address all environmental concerns.

Andrew Koch, Chairman
South Douglas SWCD

dlc

Umpqua Valley Audubon Society
P.O. Box 381
Roseburg, OR 97470
May 3, 1983

Regional Director
Bureau of Reclamation
Attention Code 150
Box 043-555 West Fort Street
Boise, Idaho 83724

Ladies and Gentlemen,

Thank you for the opportunity to comment on the Galesville Project draft environmental statement. The Umpqua Valley Chapter of the National Audubon Society believes that losses of wild anadromous fish above the proposed dam and wildlife habitat affected by dam construction and operation are likely to be outweighed by the improvement in anadromous fish habitat downstream. The degree to which that is true is not adequately assessed in the environmental statement, and the following comments are offered concerning (1) the affected environment, (2) environmental effects, and (3) mitigating measures:

I. Affected Environment

1 While recognized as a recreational activity within forty miles of the damsite, existing nature study in the Galesville vicinity was not recognized on page 3-GV-82. That activity, such as occurs on the nearby Cow Creek National Recreation Trail (ommitted in the analysis), and the need for nature study-related hiking trails would strengthen the creation of wildlife snags and wetlands at the reservoir's upper end.

II. Environmental Effects

2 The most serious potential environmental impact of the project, increased turbidity in reservoir releases, is inadequately assessed in the draft environmental statement. While the Robert Meyer (1961) study of turbidity is quoted extensively, comparisons of mean and extreme summer turbidities predicted with and without the proposed dam are not shown. The effects of "turbidities 20 NTU or less" (p. 3-GV-75) on aquatic fauna are not substantiated. Turbidity or water clarity is not one of the stream characteristics used to index downstream habitat enhancement for anadromous fish (p. 3-GV-71), and is therefore not evaluated. While some increase in summer turbidity is unavoidable, the public needs to know whether turbid water will offset enhancement from increased flow and lower water temperature in summer. Otherwise, loss of good wild anadromous fish habitat upstream is not justified.

RESPONSE

1. *Comment noted*

2. *Turbidity is not expected to be a problem. However, Douglas County will monitor water quality discharges and will provide the Oregon Department of Fish and Wildlife (ODFW) all data on a regular basis. Operations will be modified in accordance with ODFW's recommendations. This has been included in the "Environmental Commitments" section of the FES.*

Similarly, winter flow - which in an average November and February is reduced below summer flows - may be detrimental to spawning salmon and steelhead. This effect is questioned by the National Marine Fisheries Service on page 3-GV-74 and is never adequately answered. A sufficient mitigating measure would be to add the words "and streamflow for salmonids throughout the year" to the sentence ending on line 7 of the last paragraph on page 3-GV-76. This would allow ODFW to regulate both stream temperature and flow in order to meet the project's fish enhancement objective.

3 III. Mitigating Measures

Description of dam operation in the draft environmental statement states that streamflow will be increased with projected demand to 2020, but "in those years when inflow is insufficient to meet all the needs, water would be supplied on a priority basis established by Oregon water law" (p. 12), and "By state law any natural flow entering a reservoir must be passed downstream during the irrigation season" (p. 1-4) In short, while upstream anadromous fish habitat losses are guaranteed by the project, no legal assurance of low-flow augmentation is provided in the project proposal, and water demand could result in the same inadequate streamflow regime we have today. Even if releases greater than inflows were provided, the pressures for ever-greater irrigation allocations on Douglas County officials and the State Watermaster make it likely that releases of water will be appropriated and may not reach critical stream habitat segments. A sufficient mitigating measure would be to add the following sentence to the last paragraph on page 3-GV-76: "Appropriate language will be adopted to ORS 536.300 by the Oregon Water Policy Review Board to require storage and release of 4,000 acre-feet of unappropriated water annually for the enhancement of anadromous and resident salmonids downstream from the Galesville dam site. Such storage and release shall be regulated by the Oregon State Watermaster for Douglas County upon advice from the Oregon Department of Fish and Wildlife." The statement in mitigation of aquatic fauna impacts that Douglas County proposes to provide 4,000 acre-feet storage capacity is insufficient to offset the environmental impacts described.

4 It is not clear whether many references to proposed actions which "would be" taken are mitigating measures binding on the proposed project and Douglas County. Examples are: providing snags in the upper reservoir and limiting disturbances to wildlife areas (mitigation of wildlife impacts p. 3-GV-67), and blocking the narrow upper end of the reservoir to motorboating (mitigation of noise impacts p. 3-GV-23), and bank stabilization program and bufferstrip around reservoir pool (mitigation of aquatic fauna impacts p. 3-GV-76). These measures are identified as necessary to mitigate impacts and Umpqua Valley Audubon recommends their positive adoption. In addition, we suggest that you include in mitigation of wildlife impacts (p. 3-GV-67)

RESPONSE (continued)

3. *On May 23, 1983, the Oregon Water Policy Review Board approved issuance of a water right for the Galesville Project, subject to two conditions: (a) Douglas County will build a catch facility for fish at the dam and a rearing pool at the Rock Creek Fish Hatchery and (b) Douglas County will insure the instream fish flows through utilization of 4,000 acre-feet of water dedicated to anadromous fish.*

   In addition, Douglas County has "water-righted" 4,000 acre-feet of storage capacity for anadromous fish use downstream. This cannot be changed without the express permission of the ODFW. Releases for anadromous fish will also be "water-righted" to insure protection of the flow throughout the Cow Creek watershed. Flow would be monitored at three gaging stations and enforced by the watermaster and an agent of the Oregon Water Resources Department.

4. *The mitigation measures are binding. In the portion of the lake not designated for wildlife habitat, it is anticipated that limitations would be set for "fishing speeds" (usually 5-10 miles per hour) during early morning and late evening, and midday and early evening speeds would be set for waterskiing. The Douglas County Parks Department and the Sheriff's office will present recommendations to the State Marine Board. Following a public hearing, the Board will adopt rules governing use of the reservoir surface.*

4 the sentence "Motorboat speeds will be limited to 10mph to allow the resting and feeding by waterfowl necessary to offset wildlife impacts from reservoir construction."

It is clear that Douglas County and the Bureau of Reclamation have attempted to satisfy fish and wildlife as well as water supply needs in the project proposal. I hope the comments we have made support you in the effort.

Sincerely,

Jim Arneson, Chairman
Conservation Committee

page 1 of 4

3/18/83

Dear Ms. Lee,
Enclosed are my comments on the Galesville Project, Douglas Co. Or "Executive Summary.

Forgive my longhand... It's 11 miles to the freeway and 40 more to a professional typist...

Your summary needs 1 more column. An Applegate for todays needs with a Gold Mt. or Honeysuckle for tomorrows needs.

The 3 residences in the Applegate site are rentals. My husband Jim Cookman helped the owner Andrew Koch move 1 when we first located on Cow Creek in 1972. I think it to be a 1 room structure. There is "no" electricity and no phone lines to relocate (p. 8). It has a gravel forest road to relocate. 1

The tree farm, now, was formally a 900 acre wheat ranch. It was purchased Jan. 1979 by Champion International Corp. It is located 2 miles upstream from Galesville and downstream from Applegate. On Oct. 14 1980 they applied for 1.34 c.f.s. water rights from Cow Creek to water their seedling trees. Exhibit VI

Glendale, population 800 only needs water out of Cow Creek during a drought year. Their recent water rights for 1.8 c.f.s. out of Cow Creek is

RESPONSE

1. Correction made (see FES page 37).

page 2 of 4

estimated by Robert E. Meyer to be the need for Glendale into the year 2020 at a population of 1,600.

The historic Hill cabin was moved to its present site in 1904. A mobile Cabin?

Gold Mt. could provide water for fire fighting. The 1st study of Gold Mt. is CH$_2$M Hill Nov 1974 with 4,000 ac-ft releases cost 2.10 million. The same study discusses Dismal, Upper Windy (has a 120 KVA transmission line and a 10" natural gas pipeline pg. 47) and Applegate. The cost THEN was $2.10 million pg. 31 Instead of canceling Applegate to build Galesville, perhaps, the County would have water in Cow Creek by now. (Exhibit I.)

Our last storm 2/17/83 brought water over Cow Creek. The Azalea gage shows flood waters at 9 feet and Cow Creek crested at 14.25 feet. Discharge in C.F.S. is 7,420. That was a mean storm. See the picture of the confluence of the Rogue and Applegate rivers. Exhibit II "Farmland Inundated." The Applegate Lake is a flood control, fish & wildlife enhancement, irrigation, water quality control and recreation project. It is 230 feet high and has a 75,000 ac-ft of storage for flood control according to pg. 102 of Water Resource

page 3 of 4

Development, Oregon U.S. Army Corps of
Engineers, North Pacific Division Portland
Oregon 1977.

Water on Cow Creek road is not surprising
The trouble spot is downstream from Galesville.
The elevation of the road is 1699.2 and
the creek is 1693, low water.

On pg. 13 rock discussed is andesite. Pg. 41 of
the 1974 CH₂M Hill calls the abutments meta-
morphosed andesite. Pg. 9-7 of Galesville Project
2 Jan 1982 Vol I of II by International Engineering
Co. Inc. also calls Boring C-1 as being meta-andesite.
It also discusses a fault contact as evidenced
by numerous polished slip surfaces and abundant
slickensides in the core. Exhibit III. Exhibit VII

There are 71 homes, 7 miles to the freeway exit.
Regarding the C & D Lumber crushed rock quarry. That
today is pretty much of a Hole in the Ground. It
was quarried around 1979. The rock went to rock
Hauck Ranch Road to a timber sale. According to
3 the assessment roll pg. 11 date 06/03/80 the
mineral rights -- what's left ... belong to Douglas
County! See Exhibit IV and V

Sincerely,
Mary L. Cookman

RESPONSE (continued)

2. Covered in Reclamation's response to letter dated May 7, 1983, from Allan Johnson (see FES page C-75, item 3-GV-10)

3. There is no mention in the DES of mineral right ownerships (see response to public hearing testimony, FES page C-1).

page 4 of 4.

P.S.

There are 71 homes below the dam in the narrow canyon until it reachs the exist. See a Geological Survey Map of the area.

On page 14... "No prime or unique farmlands
occur within the impoundment area and little
4 commercial timber is left within the impound-
ment perimeter." Suggested reading: "Where Have the Farm Lands Gone?" by Shirley Foster Fields. National Agricultural Lands Study, 722 Jackson Place N.W. Washington D.C. 20006. Also "Listen to the Land" A Farm Journal Treasury. Prime is competing with shopping centers."

On page 13... no indication of recent movement."..
This morning I took Mc Ginnis Creek Rd 31-4-27 to B.L.M. Road 31-4-27.3 (5/10 mi) and at 8/10 mi. the road ends with erosion by water of this year. Enclosed is the weathered phyllite, yellow, and the recent phyllite, black, from the washout, water bar or ditch. Exhibit VI and Exhibit VIII and Exhibit IX

I noticed horsetails comming up.

Using an expression from the P. P. and L Contract with Douglas Co. page 16...

Galesville has a lot of "force majeure" in it!

Mary L. Cookman
Star Route Box 47C
Cow Creek Rd.
Azalea, OR 97410

ATTACHMENTS:

Exhibits I through X

RESPONSE (continued)

4. *The U.S. Department of Agriculture, Soil Conservation Service was consulted and its criteria used to determine whether certain lands within the impoundment area qualify as "prime" or "unique" farmland. Based on an application of the criteria, the determination was made that no prime or unique farmlands occur within the impoundment area. The DES states on page 3-GV-62 " . . . . little commercial timber is left within the perimeter of the proposed impoundment," however, as recognized by the county's appraisal, it is of good quality.*

The attachments are available for review at the Bureau of Reclamation regional office in Boise, Idaho, and at the Douglas County Water Resources Survey office in Roseburg, Oregon.

43B Cow Creek Rd.
Azalea, Or. 97410
April 11, 1983

Re. Galesville Dam
- Environmental Impact Statement
- Corps of Engineers 404 permit
- Department of Environmental Quality
(clean water standards)

Dear Sirs and Gaye Lee :

We believe the Galesville Dam project has been a shameful episode in county political manipulation and misrepresentation of fact. Attached are a few of the issues which I think require a response at the least.

Elk Creek studies and GAO studies verify our figures regarding actual predicted use of water.

It should be noted that Galesville was withdrawn from the hydropower study due to local opposition;
1 that the cost of producing electricity ~~be~~ maybe higher than C. of E. criteria; that there are still questions regarding geologic adequacy.

Also, permit literature describes conventional dirt fill
2 design while we continue to hear that a rollcrete design will be used. Which will it be?

Has there been an evaluation made that indicates that any dam has improved anadromous fish runs?
3 Is there any literature or proof (other than Galesville studies)

RESPONSE

1. The economic analysis presented in the Loan Application Report shows that installation of hydroelectric facilities at Galesville is cost effective. The report is available for review at the Douglas County Water Resources Survey office.

   Questions regarding the geologic adequacy of the site are addressed in Reclamation's response to a letter dated May 7, 1983, from Allan Johnson (see FES page C-75, item 3-GV-10).

2. Based on additional geotechnical and cost data collected since the DES was prepared, a roller-compacted concrete design has been tentatively selected in lieu of the earthfill alternative. Anticipated changes in environmental effect due to providing a roller-compacted concrete structure at the Galesville site are discussed in the "Changes and Errata" section of the FES.

3 to the theory that cooler water temperatures will benefit fish in an amount that would overcome losses due to blocking the upper watershed and loss due to possible increased sediment? that is, from a dam in operation?

Sincerely,

Carol Sanders

PS. Under separate cover I am sending letters given to me to send to you. We had originally believed that a hearing would be held the middle of August 1982 and that the draft would be written after the hearing. In the confusion copies of some letters were sent and some were not.

P.S. Do the benefits really equal or exceed the high money outlay plus other social, environmental. and economic costs? Of course not.

ATTACHMENTS:

News photo of inundated farmland at the confluence of the Rogue and Applegate Rivers

News clipping regarding Corps of Engineers' Days Creek study

News clipping concerning Bonneville Power Administration proposed rates

Figure 7 from Robert E. Meyer Consultants' report titled "Cow Creek System Schematic Flow Diagram"

June 6, 1967, letter from the U.S. Fish and Wildlife Service, Portland Area Office, to the Portland District, Corps of Engineers providing preliminary comments concerning effects that the Umpqua River basin project would have on fish and wildlife

Circular on Galesville Project concerns, source unknown

RESPONSE (continued)

3. There is a great deal of scientific literature available on how water temperature, streamflow fluctuations, turbidity, dissolved oxygen, streamside vegetation, etc. can affect anadromous and resident fish populations. Fish habitat changes for this project were determined with a computer model (FISHAB) developed by the U.S. Fish and Wildlife Service. This model used physical stream characteristics (current velocities, water depths, substrate types, fish cover, and channel widths) from typical stream reaches to predict the amount of fish habitat available under various discharge conditions. FISHAB and other instream flow methodologies are considered "state-of-the-art" techniques within the scientific community.

The attachments are available for review at the Bureau of Reclamation regional office in Boise, Idaho, and at the Douglas County Water Resources Survey office in Roseburg, Oregon.

4-15-83

NO RESPONSE NECESSARY

Dear Sirs.

In regard to the meeting in Roseburg the 28th. we have had so many hearings on this Subject that Surely the facts. must be all a matter of records. if perhaps they aren't then let me state again that the feasibility & Need are well known in this area on a recent petition Drive 1981 I believe; I conducted part of it & all my reactions of local people in Cow Creek valley run 90% or more whole heartedly behind it.

Sincerely yours

Frank Elst
Azalea Resident

P.S. I lost another 1½ ac of land last winter due to flooding

RECEIVED
MAY 3 1983
DOUGLAS COUNTY
BOARD OF COMMISSIONERS

NO RESPONSE NECESSARY

Re: Galesville Dam
Environmental Impact

P. O. Box 177
Azalea, Oregon 97410
April 29, 1983

To Whom it May Concern:

We were unable to attend the meeting at the Courthouse last night because we do not receive a newspaper and somehow missed having knowledge of the hearing until too late to attend.

Neither my husband nor I are experts in the area of the environment but we do observe things going on around us. We have lived in the Azalea area for thirty and thirty four years, so we have some idea of changes that have taken place.

We have noticed with sadness, the poor summer water flow. It has changed what used to be a nice creek to swim and fish in to a nearly stagnant trickle. It seems to us that the Galesville Dam could be a positive influence in turning Cow Creek back toward its original state, besides giving us a nearby recreational area for our people to enjoy. The increased water flow would also improve the potential for farming + livestock on what is primarily marginal land. We would have a more reliable source of irrigation water. This in turn would help maintain good cover crops + alleviate erosion on dried out areas.

This past winter the water got quite high several times due to the high rainfall. Each time, the creeks carried away some of the soil from adjoining fields. Hopefully, a dam could help stabilize the water at a lower level, and help avoid the loss of the precious soil we have.

We do not really understand how the power produced by a dam is put to use in the present system, but it seems so foolhardy to build nuclear power plants when we have a natural source of power flowing by our doors. We should be making maximum use of this potential by building dams as large as possible & generating as much power as possible. Perhaps somehow the power would get to the point where the poor & elderly don't have to sit bundled up in their homes to keep warm because they cannot afford it.

We live on what could be termed a flood plain area, so we do have an axe to grind. We want to see plentiful water & flood protection. We also want to give the local people a place for recreation that doesn't necessitate driving half a day to get there. A lake, even a man-made one is a beautiful thing. That enhances the environment of the soul. It would be a great opportunity for young family groups to get out for the day without packing up half the house. Our young teenagers are presently driving long distances to swim and sunbathe. This is a dangerous situation.

This dam has been the topic of conversation for over thirty years in our valley. We really pray It will finally become a reality. We need it!

Sincerely,
Bob N. & Sonia R. Phillips

P.S. This is the first year for a long time that wild ducks have hatched young near us. Its due to the extra water.

Azalea, Oregon
May 1, 1983

Gaye W. Lee, Office of Environment (PN 150)
BOR, Box 043, 555 West Fort Street
Boise, Idaho 83724

Dear Ms. Lee:

The Draft Environmental Statement on the Galesville Project in Douglas County, Oregon is a very well written document which, unfortunately, glosses over some of the adverse aspects of the proposed dam and ignores some important facts entirely.

Galesville was selected by County Officials before studies were made of any other sites which could be considered in the same class. The local newspapers carried stories to that effect over four years ago.

When it became apparent that there would be objections to the chosen site the Water Advisory Board (appointed by the County Commissioners) was instructed to analyze the county's water problems and recommend solutions to those problems. Naturally, the Water Resources Board found that Galesville was the answer, but they carefully avoided study of a far superior site two or three miles upstream from Galesville.

1 This superior site is in a narrow canyon with high, steeply sloping rock walls; and it is above the three slide areas which would menace the quality of water at the Galesville site. (It isn't necessary to make a $50,000 survey to determine the quality of this site--a topog map will tell any honest observer that here is the place for a dam if, indeed, a dam of this size is a proper place to expend public money.) A physical examination of the area will confirm the excellence of the site. The geologic structure is a strong, massive Andesite. There are no problems, as there are at Galesville, because of contacts with soft shale formations. The site would accept a dam sized to accomodate any possible stream potential and do it with utmost safety. No reason has ever been given for by-passing this site's although it has been suggested at several meetings by numerous citizens. The officials ignore it just as your Statement does.

2 The Statement pictures a conventional dam with an adjacent spillway in Figure 2-3. But the information now available calls for a Rollcrete structure with water spilling over the top of the dam. Does this make your Statement obsolete? Will this type of dam change the irrigation or electric power factors, or change the already dubious flood control values? How can any one recommend a structure which is not even discussed in the Statement. Shouldn't a supplemental publication be issued so we can judge what is being contemplated now instead of what was contemplated a year ago and thus has no relevance now? W hat is the safety record of this type of construction? How many such dams have been built and how long have they been in use?

RESPONSE

1. *We assume from the description that the site referred to is Dismal Creek. This site is discussed on pages 2-21 and 2-22 of the DES.*

2. *Based on additional geotechnical and cost data collected since the DES was prepared, a roller-compacted concrete design has been tentatively selected in lieu of the earthfill alternative. The changes in environmental effects anticipated as a result of providing a roller-compacted concrete structure at the Galesville site are discussed in the "Changes and Errata" section of the FES. Construction of the proposed structure will not affect project benefits (e.g., power, irrigation, flood control).*

   The use of roller-compacted concrete is a relatively new concept for impoundment construction in the United States. Because of the relative newness of this construction technique, the long-term safety record has not been established. A roller-compacted structure is considered as safe as, if not safer than, an earthfill structure.

		RESPONSE (continued)
3	The Statement places electric power generation as a secondary purpose of Galesville; but the County stresses that the sale of electricity is the primary source of revenue and is to pay off a big share of the total costs. Even at the ridiculous rates PP&L has agreed to pay for the power in what appears to be a Sweetheart Contract, it is arguable if the power sales will pay for the installation of the generating facilities, transmission lines, operating expenses, maintenance and interest, let alone anything on the overall debt. (Enclosed is a copy of a letter on this subject to the State Water Resources Department.) In the interests of conservation and economy it might be a better idea to scuttle the plan to market electricity entirely.	3. *The economic analysis presented in the Loan Application Report shows that installation of hydroelectric facilities at Galesville is cost effective. The report is available for review at the Douglas County Water Resources Survey office.*
4	The Statement discusses the advisory election which supported the Galesville project. Without going into detail about the gross misstatements proponents of the dam indulged in to sway the voters' opinions it should be pointed out that only 32% of the registered voters bothered to cast their ballots. On a three to one favorable vote this amounts to a positive vote of 24%. Portraying this meagre showing as a great victory doesn't say much for great victories. Remember, please, that this was presented an an all profit, no-cost, no tax, no bond project, and the low voter interest shows a pretty solid majority of skeptics in Douglas County.	4. *Comment noted*
5	Mention is made in the Statement that the Planning Advisory Committees, among others, were advised of step by step proceedings in the Galesville campaign. It does not, however, tell the whole story. The Cow Creek Planning Advisory Committee twice recommended against the zone change which the County imposed on the residents of the proposed reservoir site. The second rejection came after heavy pressure was put on the committee to fall in line with the format devised by the County authorities. (The undersigned is a member of the Cow Creek PAC and found the undue pressure to be a disgusting and unnecessary exhibition of arrogance.)	5. *The decision to approve the zone change is detailed in the "Findings of Fact and Decision, Cow Creek Sub-Basin Water Impoundment, July 23, 1982."*
6	The Statement also mentions the good intentions of the County toward the affected residents and implies that they will be treated fairly. It is true that none of them have been subjected to public floggings but that's about the most that can be said for the fair treatment the authorities have displayed. The hammering these people have taken for four years has been more like a demonstration of medieval water torture than of fair, decent government. The Water Impoundment Zone imposed on these citizens, and these citizens only in the entire state of Oregon, holds them in limbo-- unable to sell, unable to plan, unable to move, unable to borrow--awaiting the County's leisurely decision to buy them out or drop the whole project.	6. *The DES addresses this concern on page 3-GV-106, and the county has been proceeding as expeditiously as legally possible under applicable State and Federal laws.*

7 Finally, it seems odd that the BOR is so hard up for a place to dump taxpayers' money that it selects Douglas County as the recipient of its largesse. This county has squandered millions of dollars over the years--money derived from the sale of timber. It is probably less entitled than any other county in the state to make a grab for funds that surely could be put to as good or better use in other parts of the country. It seems a shame to deprive areas in honest need of help in order to benefit a relatively few people who spend a good share of their time crying for the government to reduce their taxes and stop meddling in their affairs. Perhaps the BOR can't do anything about reducing taxes but here is an opportunity to stop meddling in their affairs. All you have to do is nothing. And then see if you can't find some depressed section of the nation which through no fault of its own, unlike Douglas County, needs a helping hand.

Sincerely,
Richard A. Derrig
Richard A. Derrig
P.O. Box 244
Azalea, OR. 97410

Encl.
cc:
Rep. Weaver
Senators Hatfield, Packwood,
Metzenbaum, Proxmire
General Accounting Office
Office of Management & Budget
Anyone Interested

RESPONSE (continued)

7. *The Bureau of Reclamation's responsibility is to process applications for loans from all eligible entities. The U.S. Congress decides which of the applications will be approved and funded.*

Azalea, Oregon
March 4, 1983

James E. Sexson, Director
Water Resources Department
555 13th Street N.E.
Salem, Oregon 97310

Dear Sir:

If the Water Resources Department has not reviewed the contract between PP&L and Douglas County for purchase of power to be generated at the Galesville project, PL-84-984, we urge that such a review be made.

That contract, filed Sept. 13, 1982 and recorded in Book 100, beginning at Page 14, Deed Records of Douglas County, establishes an upward-escalating purchase schedule starting at 0.0777 per kwh in 1987 and rising to 0.1696 per kwh by 2026.

This translates to over 90% more than the current rate at the date power delivery begins, and rises to four times the present rate at the end of the contract. With inflation now under control and surplus power at hand for quite some time to come, these rates appear totally out of reason.

But even at the proposed unrealistic rates, the gross revenue from power sales (using figures quoted in the contract) won't pay the interest on the BOR loan, let alone repay any part of the principal. And this, please note, is without deducting any charge for operating expenses, maintenance, salaries or repairs.

In short, dependence on power sales as a major source of revenue appears dubious at best, and horrendous at worst. Furthermore, as the contract terms become more widely known, public antagonism toward investor-owned power companies, already at a high level, is bound to increase significantly. All in all then, we feel that the inadequacy of this contract warrants rejection of Douglas County's application for a water right at the Galesville site.

Respectfully submitted,
Richard A. Derrig
Richard A. Derrig
P.O. Box 244
Azalea, Oregon 97410

cc:
Rep. Weaver
Senators Hatfield,
  Packwood, Metzenbaum
General Accounting Office
BOR

May 2 - 83

Mr Lloyd,

Because I was Unable to attend
the meeting in Roseburg April 28th
I would like to submit my statement on the dam site project. My
husband and I live two miles down
stream from the dam site.
My Great grandfather moved on this
property in the 1860s and my
family has lived here since that
time. My husband and I are retired
and hope to live the rest of our
life here. We are very much apposed
to this project. We as a Country are
supposed to be preserving our farm
land and timber, then why Cover
1 up over 700 Acres of Choice land
including 10 homes when there are
other sites where dams can be built?
Once these Acres are lost they are
gone forever. These families are a
part of the history of Douglas Co.

RESPONSE

1. *Galesville dam was selected by Douglas County as the site best capable of meeting the needs discussed in the draft environmental statement.*

And should be given first Consideration. This if a Comunity of Over 250 famlies living less than ten miles down stream from the dam site. Why build a dam where there is this many people in the midst of this Valley? the other Alternative sites have no homes or farm land to be taken. County officials and business men are pushing this project for a reason they only talk about where it is not for public stestimony, that is for the sportsman use. I have heard them many times urging people to back the dam so they can have a place for the public recreation. fishing boating swiming. Are we to put recreation ahead of homes? I feel very strongly about taking homes from people so others can enjoy a week end of sports. this will also effect us who live

3

down stream. these families who will lose their homes have labored many years to make a home for them selves and their Children. unless you have lived on land that your Great grandfather has labored and left momories no one knows the feeling of those who are having their homes distroyed. such are some of these families. There are many retired Couples in the Comunity who have moved here to enjoy a quiet life. we do not look forward to the traffic that this dam will bring up this road, I would like to point out some statements made in the draft enviromental statement March 8th 83 that I beleive is wrong.

page 2 Streamflow

2 On Cow Creek major flooding Accured 10 times in the past 46 years

RESPONSE (continued)

2. Flooding is discussed in detail on pages 3-GV-25 to 28 and pages 3-GV-33 to 37 of the DES.

In order to properly evaluate costs or benefits which occur over a period of time, the values must be adjusted to a common point in time. This "point" is often identical to the time at which the evaluation occurs. In the case of the Galesville Project, costs associated with flooding were adjusted to a 1981 base as shown in the November 1981 Robert E. Meyer Consultants report, "Cow Creek Project Flood Control Potential."

4

My folks lived here during that
2 time and the only major floods
were in 64 and 74. My folks passed
away in 65-66 and they said they
had never seen any flooding near
as bad as the 64, flood was. they
had lived here since 1904. I would
like to see proof of the other eight
floods mentioned. we have had high
2 water many times but nothing
to be called floods. Why were the
cost figured in 1981 dollars?
when they go back to year 37.

page 4 Irrigation

There is no proof that the 5084
acres that are presently called
3 dry will ever be irrigated.
nor the 955 acres zoned rural
will ever use river water.

Page 4 approximately 45000
4 recreation days of additional
use would be accomodated Annually

RESPONSE (continued)

3. It is correct that there is no "proof" of use. The figures are estimates and are discussed in greater detail on pages 3-GV-60 and 61.

4. Pages 2-10 through 2-12 of the DES outline the facilities that would be provided at the Galesville site. These facilities will more than accommodate the 45,000 recreation-days of use that are predicted to occur annually.

5

How?
Project Construction would result
5 in an annual flood Control benefit
of $909.800. How?
If the dam were built at Gold
Mt. or Honeysuckle Glendale Could
6 be served all the water they need
from upper Cow Creek.
there is no proof that shows the
7 benefits of Galesville will out
weigh the Cost. now or in the
future
There were several front page
stories in the Roseburg paper
this past year of Industry looking
at property in South Douglas Co.
8 Their big objection to moving
here was lack of Acres ~~available~~
available and high Cost of transpor-
tation, water was never an issue
Galesville is not the place for
a dam. please Consider the

RESPONSE (continued)

5. Flood control benefits were calculated on the basis of Corps of Engineers criteria as discussed in the November 1981 Robert E. Meyer Consultants report.

6. Gold Mountain and Honeysuckle are downstream from Glendale. There is not sufficient natural flow from Cow Creek to meet Glendale's existing or future water needs. Therefore, an additional impoundment upstream would have to be constructed (see pages 1-9 through 1-11 of the DES).

7. According to the Loan Application Report, the Galesville Project has a benefit-cost ratio exceeding 1 to 1. The report is available for review at the Douglas County Water Resources Survey office.

8. Comment noted. However, testimony presented by industrial water users and the Industry Development Committee at the land use hearings indicated that water supply was a concern.

6

homes. lets give the small
home Owners a break and
not bow to big business
and sports and recreation.

yours Sincerly
Florence P. Lapp
Box 36-B Cow Creek Rd.
Azalea Ore. 97410

Box 6, Starveout Road
Azalea, Oregon 97410
May 5, 1983

Gaye W. Lee, Office of Environment
Bureau of Reclamation
Box 043
555 West Fort Street
Boise, Idaho 83724

Madam and Sirs:

This letter is in reference to the Galesville Project in Douglas County, Oregon. I live some six or seven miles below the proposed site, and am inalterably opposed to it.

My family was the victim of a Bureau of Reclamation Dam Project almost thirty years ago, and we still bear the painful scars. I saw that project from its inception to its completion. I watched political powers there use propaganda with lies, half truths, and deceptions in order to push through construction of a dam which should never have been built. I saw that dam built on a site my family and, finally the Bureau itself, (though, as one of the engineers told me, it was too far along politically to stop it) knew to be shot through with earth faults-- a fact borne out when the dam was completed, and the Bureau tried to grout the mountain, with questionable success. I saw vital winter deer range inundated, with a resulting depletion of deer herds. I saw large runs of anadromous fish die down to almost nothing. I saw people robbed of homes and livelihood-- and happiness (as a matter of fact, just a year ago, my daughter asked whether we couldn't sue the government for the ruin of our lives.)

I have seen the same forces at work here. Local political powers have been pushing hard with the same sort of lies, half truths, and innuendo. They have ignored facts presented to them in their avid grab to build Galesville Dam without investigating other sites of equal or better merit-- sites where people would not be displaced, having their lives and properties ruined-- but where large companies have holdings.

I have talked with James and Mary Cookman, Carol Sanders, and Mary Brady who have, as the Galesville Dam Inquirers, dug out facts which the Douglas County Commissioners have ignored and/or tried to suppress. I submit to you that they are serious, intelligent people, whose arguments go far beyond the mere desire to save their homes and livelihood. The truth of the evidence they have submitted should be-- deserves to be--weighed and given a full measure of consideration. They are the only people who have cared enough to dig out the true facts about the Galesville Dam Site-- facts which, as I have said before, have been widely ignored and suppressed by proponents of Galesville Dam.

Personally, having learned of the defects in the Galesville site, the idea of living below such a dam fills me with fear. We don't need a Teton in Douglas County.

Sincerely,

Winifred Baker

(Mrs.) Winifred Baker

RESPONSE

Comments noted

NO RESPONSE NECESSARY

5/6/83

Gaston Portoria
Route 2 Box 6
Days Creek, Ore. 97429

BuR, Box 043
550 W. Fort St.
Boise, ID
83724

Dear Madam or Sir:

This is to support the proposed Galesville dam for recreational reasons.

As a sailor, I have to drive a long ways to go sailing since there's no go places in Southern Douglas county. Galesville would cut down on driving time and gasoline used for local recreationists.

Please put me on your mailing list for final EIS.

Sincerely,

Gaston Portoria

LOMBARD, GARDNER, HONSOWETZ, BREWER & SCHONS
ATTORNEYS AT LAW

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915 OAK STREET, SUITE 200
EUGENE, OREGON 97401

(503) 687-9001
484-7402

OF COUNSEL
ALLEN L. JOHNSON

May 7, 1983

Gaye W. Lee
Office of Environment
Bureau of Reclamation
Box 043
555 West Fort Street
Boise, Idaho 83724

Re: Draft Environmental Impact Statement
Galesville Project, Douglas County, Oregon

Dear Ms. Lee:

I represent several families who will be displaced by the proposed Galesville project, including Gerald and Mary Brady, Sam and Denise Brady, Dan and Misty Brady, Carol and Robert Sanders, George and Heidi Cavagnaro. I also represent James and Mary Cookman, whose property is at the upper end of the reservoir. They have been advised that their home is no longer within the proposed impoundment area, but they continue to oppose the project as before.

The draft environmental impact statement is inadequate in many respects, including the following:

A. Geographical Scope:

The draft EIS confines its analysis of alternative dam sites and other means of meeting the identified needs to the Cow Creek drainage. Yet much of the proposed project's service area is below the mouth of Cow Creek in areas that could be served as well or better by impoundments on the Upper South Umpqua.

Because of the overlap, development of Galesville without full analysis of alternative solutions to the problems of the entire subbasin is likely to preempt more comprehensive, coordinated, and economical solutions to the problems of the whole subbasin.

The need for a basin-wide analysis is identified in the "Green Sheets" prepared by my clients and submitted at the scoping hearings. Those materials include an April 4, 1980, Corps of Engineers letter to Senator Hatfield pointing out that

RESPONSE

A. *Geographical Scope:*

Under the Small Reclamation Projects Act (Public Law 84-984), applicants must assess the environmental impact of their proposed project and submit a report to the Bureau of Reclamation. The Bureau then determines whether to prepare an EIS (environmental impact statement) or a FONSI (finding of no significant impact) for the proposed project. Since Douglas County's loan application is for a dam and reservoir at the Galesville site, the project vicinity and scope of the EIS are focused on the Cow Creek subbasin and the lower South Umpqua River basin of the county.

Prior to submitting its application to the Bureau, Douglas County considered the entire south Umpqua subbasin by conducting reconnaissance level studies on sites on the South Umpqua River, Cow Creek, and other tributaries to the South Umpqua. Under the recommendations of the consultants who performed most of the studies and meetings conducted by the Water Advisory Board, the conclusion was reached that a reservoir on Cow Creek would best serve the various needs of the citizens of Douglas County for the most reasonable price.

Additional information on the selection of sites was presented at the land use hearing before an independent hearing examiner and supported by the hearing officer (Findings of Fact and Decision, Cow Creek Sub-Basin Water Impoundment, July 23, 1982).

Other sites, both within and outside the Cow Creek watershed have been considered and evaluated at varying levels of detail by the U.S. Army Corps of Engineers (Days Creek Project and National Hydroelectric Survey), Robert E. Meyer Consultants (Douglas County Water Resources Management Program), and CH2M Hill (Cow Creek Damsite Reconnaissance and Applegate Creek Damsite Feasibility Study). The DES acknowledges that construction of the proposed project could affect sizing but would not preclude development of future projects in the South Umpqua subbasin. Consequently, the Cow Creek watershed was selected as a part of the subbasin where both immediate and long-range water supply problems can be overcome by the county irrespective of the uncertain future construction of Federal projects.

Galesville was first studied by the Corps as an alternative to the 400,000-acre-foot Days Creek proposed for a large tributary of the Upper South Umpqua.

The Green Sheets also include a newspaper story entitled "Days Creek dam impact studied," which reports on a Corps study of the effect of a dam on Cow Creek on the need for a dam on the South Umpqua at Days Creek. The item says that county officials had requested the study because they "apparently wonder if a dam on Cow Creek would have a negative impact on the need for a South Umpqua dam." It reports that the study was "not complete" but that the results of the study were expected by July.

We have never seen that report, and there is no mention of it in the Draft EIS.
Nor is there any analysis of the impacts, costs, and benefits of other sites on the Upper South Umpqua which could be used alone or in combination with a Cow Creek site to better serve the overall needs of the South Umpqua Basin.

The County's own Oct., 1979, Water Resources Management Program recognizes that the appropriate unit for analysis is the entire South Umpqua drainage, and includes Upper South Umpqua sites in its analysis of alternatives. See, e.g., Chapter V, attached. That analysis is out of date and fails to include either flood control or fish enhancement, major factors in the selection of Galesville. It also ignores recent changes in funding and construction prospects for Days Creek, which must be taken into consideration.

The State of Oregon's official basin plan for the Umpqua River Basin (attached), also treats the South Umpqua Subbasin as a unit.

Segmentation of the Cow Creek sub-subbasin is especially harmful because its impacts on out-of-basin needs are so uneven. It would fulfill the great majority of the identified municipal, industrial, and irrigation need in the entire subbasin, while it would provide far less flood control benefit or fish enhancement benefit than a larger impoundment or combination of impoundments on the upper South Umpqua. Once the major MII benefits have been taken care of, the potential for an impoundment that could provide those needed flood control and irrigation benefits would be substantially reduced.

Without flood control, fish habitat, cost, size, and other information on Days Creek, Tiller, Jackson, and Elk Creek similar to that developed for the four Cow Creek sites, it is impossible to compare the environmental impacts of these alternatives or to make a meaningful assessment of the

Galesville alternative.

The Days Creek proposal resulted in a seven-volume draft EIS, and the County has prepared a fairly comprehensive study of the entire basin as part of its 1979 program. These materials can be updated with supplementary studies without undue cost or delay. There is no excuse for not doing it.

B. Sizing of Alternatives:

The Galesville dam is sized to optimize the yield of the site. That size was originally 38,000 acre feet. The Honeysuckle and Gold Mountain proposals were also sized at 38,000 acre feet, not because that size is justified by demand or topography, because that is the size of the Galesville dam. The Honeysuckle site could support an impoundment of 78,000 acre feet, according to the National Hydropower Study. Such an impoundment could provide substantial fishery enhancement in the lower South Umpqua. Galesville provides no enhancement outside of Cow Creek. Such an impoundment could generate far more hydropower than Galesville. It could also provide much greater flood control benefits to a far more heavily developed area than Galesville. Combined with Applegate, it could meet almost all of the identified needs of the South Umpqua basin while preserving important farm and forestlands, communities, and families at the more populated Galesville, Tiller, and Days Creek sites. Yet none of these impacts were considered because of the artificial sizing of the reservoir.

On the other hand, neither Gold Mountain nor Honeysuckle was downsized to reflect decreased irrigation and M&I requirements resulting from their location below Glendale.

This procrustean approach to sizing naturally favors the site used as the standard. Such slanted analysis is improper. See 40 Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 FR No. 55, 3/23/81, 18026-38, Question 4c; 40 CFR 1502.14.

C. Combinations:

The draft EIS does not consider the alternative of developing Applegate Dam now and a larger dam at Gold Mountain, Honeysuckle, or one of the Upper South Umpqua sites later.. It is clear from a reading of the EIS that such a proposal could result in a more economical and socially and environmentally preferable solution to the long-term needs of the subbasin. It would solve the municipal water needs of the Glendale area. It would not preempt consideration of future projects on the Upper South Umpqua as alternatives to the larger project sites on lower Cow Creek. This combination approach has consistently

RESPONSE (continued)

B. Sizing of Alternatives:

Galesville was sized at 42,225 acre-feet, and Gold Mountain and Honeysuckle were sized at 38,000 acre-feet to reflect decreased irrigation and municipal and industrial requirements resulting from their location below Glendale. Both Galesville and Gold Mountain were sized at or near the optimal average hydraulic capability of the watershed at the site.

It was recognized early that the cost of a 78,000-acre-foot reservoir at Honeysuckle was well beyond the capability of the county and would have been eliminated as an alternative. However, at the request of the Cow Creek Dam Inquirers, Honesuckle was made a comparable alternative to the other sites and reexamined. Even at 38,000 acre-feet, Honeysuckle would not be affordable by Douglas County nor cost effective.

C. Combinations:

Combinations were considered and evaluated within the county's financial capabilities and are discussed on page 2-20 of the DES.

been urged by my clients and other participants in the local, state, and federal proceedings on this project and is mentioned several times in the testimony and letters submitted at the scoping hearings. Yet it has been completely ignored.

D. Irrigation Benefits are Inflated:

The analysis of irrigation benefits is based upon distorted BOR criteria that have no bearing on reality. They are not based upon surveys of farmers in the area. The assume a model farm of some 373 acres with 160 acres of irrigable land, even though the County's loan application states that the average amount of irrigable land per ownership is only 28 acres and there is not one farm over 160 acres in the entire service area.

The loan analysis contains numerous other defects of the kind identified in the 1981 Report of the Comptroller General to the Congress entitled Federal Charges for Irrigation Projects Reviewed Do Not Cover Costs." They include:

1. Failure to justify the assumption that marginal benefit per acre-foot of newly irrigated land will be the same as for supplemental irrigation.

2. Failure to distinguish projected improvements in yield caused by irrigation from improvements resulting from improved seed, stock, and techniques.

3. Failure to justify projected shifts to intensive agriculture or high-value crops.

4. Failure to justify the assumption of an instantaneous jump in projected yields.

5. Failure to deal with structural market problems identified in the USBR field review and in the County's recent Agricultural Data Base Committee Final Report. These include problems with transportation, distance from markets, lack of processors, and evidence of saturated markets.

6. Failure to consider the distribution of farm sizes.

See the attached analysis and critique of the loan application by Ron Oliveira, agricultural economist, for more details.

E. Other Comments:

References are to pages of the Draft EIS.

Page 4: The annual flood control benefit should be netted to reflect the flood control benefits prevented by losing or

RESPONSE (continued)

D. Irrigation Benefits are Inflated:

(first paragraph) Commercial irrigation benefits were derived in accordance with Bureau of Reclamation criteria for the Public Law 84-984 program. These criteria require that a farm budget be prepared. The budget must be developed for a full-time family-size farm involving a farm operation that is typical in the project area. Selection of the typical operation reflects census data for Douglas County using 1964, 1969, 1974, and 1979 Census of Agriculture data. Loan ownership information contained in the Loan Application Report was obtained from data in the Douglas County assessor's office in terms of the "160-acre limitation." The average amount of Reclamation classified irrigable land is 18 acres per ownership. This value is based on a project gross total irrigable acreage of 13,400 acres and 471 ownerships. There are ownerships with total land holdings, which include nonirrigable lands, exceeding 160 acres in the service area.

(second paragraph) The Comptroller General's report refers to cost repayment conditions relative to a number of Reclamation-owned and operated irrigation projects. Galesville is owned and will be operated by Douglas County. The repayment analyses contained in the county's application for a loan to finance construction was prepared in accordance with procedures specified under Public Law 84-984 to allow the Bureau to determine prospects for loan repayment.

E. Other Comments:

Page 4: Since there is no current active proposal for a larger impoundment on the upper South Umpqua, there is no basis to calculate a net flood control benefit for Galesville. Should a larger impoundment be proposed, it would consider the flood control benefits of the Galesville Project.

deferring potential flood control benefits from a larger impoundment on the Upper South Umpqua.

Page 13: The statement that no prime or unique farmlands occur within the impoundment area is false. The tilled and irrigated land within the site is mostly class II and III USCS soils, both "prime" under BOR and USCS standards.
The site contains fine stands of commercial timber, as recognized by the County's own appraisers.

a Page 15: Salmon and Steelhead information needs to be updated in light of low returns this year. Check with Fish and Wildlife on the Fall Chinook run in particular. It is believed to be in serious trouble.

b Page 15: The Galesville index of added fish habitat does not take account of the loss of the enhanced fish habitat that would be created by Applegate Dam between the two dam sites.

c Page 15: There is no cost-benefit analysis or other explanation of why no fish ladders or fish screens will be installed at Galesville. There is no way to evaluate the adequacy of the mitigation measures without knowing the cost of preserving the existing resource. The proposal is not consistent with state and federal policies calling for maximum preservation and enhancement of native populations of anadromous fish. See, e.g, ORS 496.435; Fish and Wildlife Coordination Act, 16 USC 662.

d Page 15: The statement that "anadromous fish production upstream from the damsite is low" is highly misleading. It fails to take account of the high probability that Applegate Dam would be built if Galesville is not, thereby enhancing both spawning and rearing habitat over some 35 miles of river and potentially increasing the productivity of the above-dam area enormously. This issue is not analysed in any of the studies done to date.

Page 3-GV-10 The statement glosses over many hours of detailed testimony by a licensed engineering geologist and hydrologist on the issue of potential faults. It sets no standards for dealing with faults that are discovered in the additional investigation mentioned. It does not call for delaying final selection of a site until those investigations are completed. It does not specify the potential cost in lives and dollars that would result from the "worst case" alternative--a dam break, or assess the probabilities of such a break occurring. Without a clear statement of the substance of the expert's testimony and without a clear statement of the consequences, the statement is not only inadequate. It is misleading.

RESPONSE (continued)

Page 13: The Department of Agriculture, Soil Conservation Service was consulted and its criteria used to determine whether certain lands within the impoundment area qualify as "prime" or "unique" farmland. Based on an application of the criteria, the determination was made that no prime or unique farmlands occur within the impoundment area. The DES states on page "little commercial timber is left within the perimeter of the proposed impoundment;" however, as recognized by the county's appraisal, it is of good quality.

Page 15.a.: According to the Oregon Department of Fish and Wildlife (ODFW), the fall chinook run in Cow Creek is not in trouble but expanding. Updated fall chinook numbers are available from the ODFW Roseburg office.

Page 15.b.: The fish habitat index used shows net changes in available fish habitat under pre- and postproject conditions. Flow and water temperature improvements below and fish losses above each impoundment site were considered in the fishery effects analysis. The index provides a means to objectively compare the fishery resource changes expected with each alternative plan.

It should be noted that fish habitat located upstream of the Galesville site would not change unless the Applegate alternative were adopted.

Page 15.c.: The fishery mitigation/enhancement plan was developed and agreed to by the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and ODFW. Fish passage facilities were considered by the above agencies and found not to be viable for the Galesville Project.

Page 15.d.: The statement that "anadromous fish production upstream from the damsite is low" is an account of present conditions. Fish habitat indices were developed for the four alternative impoundment sites and are presented in the DES. The index of added fish habitat is 143,728 for the Galesville plan and 22,451 for the Applegate plan.

Page 3-GV-10: The geotechnical studies for the dam's final design referred to on page 3-GV-10 of the DES have now been completed. Construction material studies are still ongoing. The result of the studies on the dam indicate the following:

1. No adverse geologic conditions have been found that would affect the construction of a roller-compacted concrete dam at the site.

2. The upstream and downstream contacts between the meta-andesite and phyllite fall outside the dam foundation and will not cause any stability problems.

3. The dam will be founded entirely on meta-andesite. The decomposed and weathered rock will be removed, exposing a fresh, moderately hard to hard meta-andesite flow breccia which will provide the foundation for the dam.

4. Minor shearing and differential weathered zones will require special treatment during foundation preparation.

5. Permeability testing of the foundation rock indicates the rock generally has a little permeability. The permeability decreases with depth and becomes very tight at moderate depths below the dam. However, some shallow foundation grouting will be required to control seepage through the abutments.

6. The landslides in the reservoir area are shallow and are not expected to have adverse effects on the operation of the dam and reservoir. No recent movements have been observed; however, monitoring devices have been installed in the landslides should future movements occur.

The full report will be published by July 1983 and will be available for inspection at the Douglas County Water Resources Survey office.

The authors of the statement unctuously recommend that "accurate usable information concerning measures being taken to ensure safe construction" be provided "early and continuously to Galesville Residents." 3-GV-112. The "worst case" analysis in the statement is a poor start toward that goal.

Page 3-GV-71 All estimates of habitat enhancement are based upon existing conditions in Cow Creek below the dam. There has been no study and there is no data to support the assumption that the increased summer flows and lowered winter flows will leave that habitat substantially unaltered. It is highly likely that scouring and other changes in river morphology and biology will result from the changed flows, rendering the current projections meaningless.

These comments supplement those made by my clients and others at the EIS hearing and at earlier stages in the overall evaluation and citizen participation process.

Sincerely,

Allen L. Johnson

ALJ/me
encs.
cc: Clients

ATTACHMENTS:

"Chapter V, Water Resources Management Program," Douglas County

June 25, 1982, Resolution before the Water Policy Review Board of Oregon pertaining to the water resources of the Umpqua River basin

Review comments on the Public Law 84-984 loan application for the Galesville Project by Ronald A. Oliveira, Ph.D., Agricultural and Resource Economist; Dr. Oliveira's curriculum vitae

RESPONSE (continued)

Page 3-GV-112: Comment noted

Page 3-GV-71: The habitat projections take these matters into consideration and reflect "with project" conditions.

The attachments are available for review at the Bureau of Reclamation regional office in Boise, Idaho, and at the Douglas County Water Resources Survey office in Roseburg, Oregon.

APPENDIX D - ENVIRONMENTAL COMMITMENTS

ENVIRONMENTAL COMMITMENTS

This section lists the commitments to mitigate adverse impacts or enhance the environment. Douglas County has the primary responsibility to see that these environmental commitments are met.

As a result of the review of the draft environmental statement, several environmental commitments have been added and revised (see commitments under "Cultural Resources" and "Aquatic Fauna"). Further details can be found in the respective sections of the draft environmental statement and in Appendix C of this report.

A. Preconstruction Phase

1. Permits

a. Douglas County or its contractors will obtain all necessary permits and approvals prior to construction.

2. Mineral and Aggregate Resources

a. Purchase the C&D Lumber quarry and stockpile

b. Purchase the Brady property and farm rock source

3. Geologic, Soils, and Seismic Impacts

a. Perform investigations and evaluations of possible landslide areas within the reservoir basin which will be affected by road construction, borrow operations, or inundation

b. Perform investigations and evaluations to verify the adequacy of the foundation and abutments

c. Design the dam and appurtenant structures for the appropriate seismic values for the area

4. Dam Safety

a. Design the dam and related facilities in accordance with sound engineering practices

b. Submit the construction plans and specifications to the Bureau of Reclamation and the Oregon Water Resources Department for safety review

c. Develop an emergency action plan

5. Surface Water and Aquatic Fauna

a. Design the powerhouse discharge facilities to provide aeration of flows

6. Cultural Resources

   a. Evaluate the potentially historic barn on the Brady property, research the potential burial of an early settler named MacElroy, and evaluate the lithic scatter found on the Brady property to determine if they meet National Register criteria. If National Register criteria is met, a mitigation plan will be prepared in consultation with the State Historic Preservation Office, Bureau of Reclamation, and representatives of the Cow Creek Band of Umpqua Indians.

7. Social Environment

   a. Begin negotiations with property owners at the earliest possible date to minimize speculation, apprehension, and misinformation

   b. Purchase private property and provide relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act

B. Construction Phase

1. Topography

   a. Slope cuts and fills at angles that prevent landslides and revegetate where appropriate to minimize erosion

2. Mineral and Aggregate Resources

   a. Utilize materials found within the impoundment perimeter or excavated for spillway construction and road relocation if they are suitable for construction purposes

3. Dam Safety

   a. Install 24-hour electronic sensors directly linked to Douglas County Reservoir Operations Center

   b. Install appropriate instrumentation systems to allow monitoring of structure performance

4. Air Quality

   a. Control dust during construction by wetting the ground surface as necessary

   b. Revegetate exposed areas to achieve long-term soil stabilization

   c. Minimize hauling distances by using fill material from within the pool area to avoid exposing downstream residences to windblown dust

   d. Contractors would be required to use such methods and devices as are reasonably available to control, prevent, and otherwise minimize atmospheric emissions or discharges of atmospheric contaminants and noise.

5. Noise

   a. Restrict high-speed boating to the main pool by leaving trees/snags in the upper end of the reservoir (also done for wildlife habitat)

6. Surface Water

   a. Cut and remove vegetation from the impoundment to minimize decaying organics except for the area in the upper impoundment, which will be cleared under the direction of ODFW to leave trees/snags for wildlife

   b. Avoid grubbing vegetation and soil disturbance to the extent possible to minimize nutrient release from soils

   c. Install an outlet works which includes two movable intakes to help regulate temperature and turbidity in the water released and in Cow Creek

   d. Install suitable valving in the outlet works to aerate release water

   e. The project would comply with Executive Order 11988, Floodplain Management.

   f. Reasonable care will be taken during construction of cofferdams or diversion dams to prevent increased turbidity or siltation in the stream channel.

   g. To the extent possible, machinery for instream construction would operate from the streambank not in the stream.

   h. To the extent possible, disturbance of the streambed would be kept to a minimum, and the streambed would be returned as nearly as possible to its original condition or better outside the reservoir.

   i. Excavated materials would not be stockpiled or deposited near or on streambanks, steep slopes, wetlands, or other watercourse perimeters where they could be washed away by high water or storm runoff or encroach upon the watercourse itself.

   j. Contractors would be required to use such methods and devices as are reasonably available to insure that any wastewaters discharged into surface waters would be essentially free of settleable material.

   k. Contractors would be required to comply with all State and Federal laws and regulations regarding the control and abatement of water pollution. The county has included a Clean Air and Water Certification in the Loan Application Report (Myers, 1982) attesting that no facilities to be utilized in performance of the contract have been included on the Environmental Protection Agency list of violating facilities.

l. Any water quality monitoring required to assure that applicable State and Federal water quality standards are met during construction would be done by the contractor, Douglas County, or Oregon Department of Environmental Quality.

m. The adopted minimum perennial streamflow will be maintained whenever sufficient natural flow is available in the stream.

7. Ground Water

   a. Remove or empty, disinfect, and backfill abandoned household septic systems located within the pool area and buffer zone

   b. Sanitary wastes will be collected from the tanks of portable toilets and trucked to the nearest municipal wastewater treatment plant for disposal.

8. Vegetation

   a. Revegetate disturbed areas (either reseed or landscape) that are not permanently occupied by new facilities and those areas around new facilities

   b. The project would comply with Executive Order 11990, Protection of Wetlands.

9. Wildlife

   a. Work with ODFW to conserve the upper reservoir area for wildlife habitat--within dam safety limits

   b. Utilize any excess excavated material (if available) in upper pool area to create islands for wildlife habitat under the direction of ODFW

   c. Block construction roads that will not be permanent access roads to minimize disturbance to wildlife

10. Aquatic Fauna

   a. Install suitable facilities in the outlet system to aerate release water

   b. Install fish capture facilities below the powerhouse to trap adult coho salmon

   c. Install coho rearing pond at the Rock Creek Fish Hatchery

11. Cultural Resources

    a. If cultural resources are found during project construction, work in the immediate area would be halted and the State Historic Preservation Officer contacted. The procedures of the Advisory Council on Historic Preservation (36 CFR 800) would be followed. The find would be evaluated for National Register significance and, if necessary, mitigating measures would be completed.

12. Visual Quality

    a. Any long-term adverse impact on the esthetic character of the project area would be minimized by proper landscaping, site design, or site restoration. When an area is no longer needed for construction, stockpiling, or access, any land disturbed but not permanently occupied by new facilities would be landscaped and/or revegetated as needed.

    b. Develop and maintain a vegetated buffer zone between the access road and reservoir and around the reservoir where possible

    c. Provide landscaping or maintenance of vegetation at reservoir access areas

    d. Shape the land where appropriate at the damsite and revegetate the area

C. Operation Phase

1. Noise

    a. Block the narrow upper end of the reservoir to motorboats

2. Surface Water

    a. Utilize 4,000 acre-feet of storage capacity for streamflow enhancement and temperature control

    b. Cow Creek water temperature, instream flows, and turbidity will be monitored by the county throughout the life of the project. Data gathered would be used by the Oregon Department of Fish and Wildlife to recommend changes in project operations.

    c. Coordinate with the Oregon Department of Fish and Wildlife for optimum release to benefit anadromous fish

    d. Operate the project so that existing minimum streamflows and prior water rights of record are not adversely impacted

3. Vegetation

    a. Maintain a vegetated buffer strip around the impoundment in cooperation with the Bureau of Land Management

b. Enhance riparian vegetation downstream of the damsite by continuing the established, local riparian vegetation habitat program. The county will promote, in cooperation with South Douglas Soil and Water Conservation District, Soil Conservation Service, and ODFW, maintenance of existing riparian vegetation.

4. Aquatic Fauna

a. The Oregon Department of Fish and Wildlife will plant trout in the reservoir.

b. In cooperation with the Oregon Department of Fish and Wildlife, trap adult coho salmon at the damsite and transport them to the Rock Creek Fish Hatchery for spawning. Juveniles from the hatchery will be returned to the Cow Creek subbasin for release in tributary streams located below the Galesville site.

c. The Oregon Department of Fish and Wildlife will administer and be responsible for project fish facilities. Annual operation, maintenance, and replacement costs of these facilities will be the responsibility of Douglas County.

d. Sufficient water will be routed through the fish capture facility to insure its proper functioning.

e. Utilize 4,000 acre-feet of storage capacity for release to enhance anadromous and resident fisheries habitat below the damsite; maintain instantaneous release of this water at a level sufficient to enhance fisheries as directed by ODFW

f. Maintain sufficient gaging stations to insure protection of fish releases

g. Postproject evaluations to assess anadromous fishery benefits will be sponsored by Douglas County at appropriate intervals. ODFW, in cooperation with the National Marine Fisheries Service and U.S. Fish and Wildlife Service, will develop criteria and supervise evaluations.

h. If the Oregon Department of Fish and Wildlife determines that the return of hatchery fish to Cow Creek is poor, Douglas County will fund the construction of a fish acclimation/release facility in the Cow Creek subbasin under the direction of the Oregon Department of Fish and Wildlife.

5. Recreation

a. Provide additional law enforcement during the recreation season to lessen potential problems with traffic, noise, trespassing, and vandalism

b. Provide a year-round caretaker to help control trespassing and vandalism

c. Facilities will be operated by the Douglas County Parks Department as part of its normal program.

6. Transportation

a. Provide alternative access or compensation for traditional and existing uses of downstream residents if they cannot practically ford Cow Creek to reach their lands due to increased flows

7. Police Protection

a. Increase summer patrols by the county Sheriff's Department in the project area to minimize vandalism and trespassing

8. Energy

a. Hydroelectric energy generation will be incidental to water releases for other purposes. The dam will not be operated as a peaking facility.